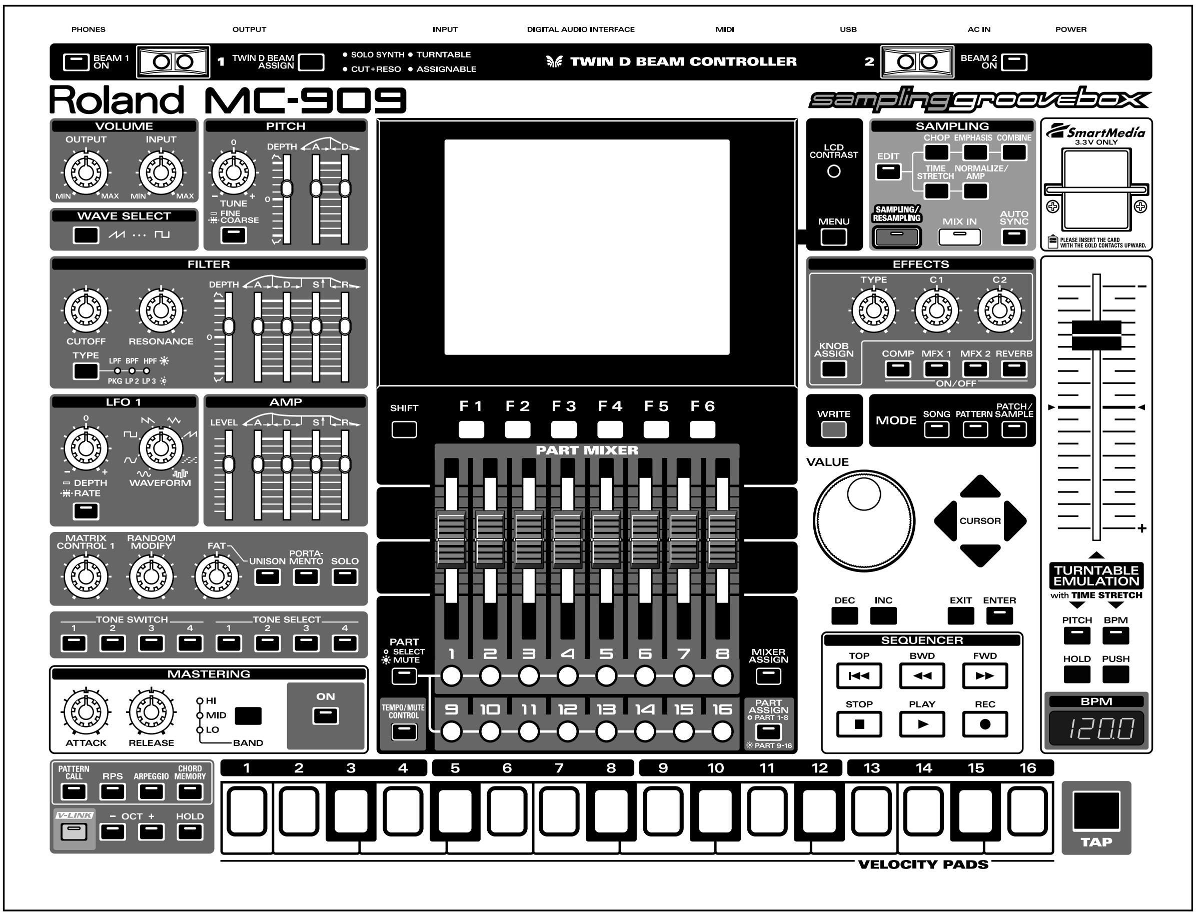
MC-909

sampling groovebox

SERVICE NOTES
Issued by RJA

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Roland 17058122E0 Printed in Japan (0800) (AS)

SPECIFICATIONS

MC-909: Sampling groovebox

Sound Generator Section

Maximum Polyphony	64 voices
Sampling Rate	44.1 kHz
Parts	16 (Main) + 16 (RPS)
Waves	693
Patches	
Preset	800
User	256
Card	256
Rhythm Set	
Preset	72
User	128
Card	128

Sampling Section

Audio Format	16-bit linear (File Type: WAV/AIFF)
Maximum Polyphony	64 voices
Sampling Rate	44.1 kHz (fixed)
Sampling Time	

- Internal memory (16 MB) only

mono: 180 sec. approx. (stereo: 90 sec. approx.)

- with DIMM (256 MB)

mono: 51 min. approx. (stereo: 25.5 min. approx.)

Samples	
User	2,000
Card	7,000 (128 MB SmartMedia)

Sequencer Section

Parts	16 + Tempo/Mute Control
Resolution	480 ticks per quarter note
Tempo	5-300
Maximum Note Storage	approx. 1,300,000 notes
Patterns	
Preset	215
RPS	440
User	200
Card	999
Recording Mode	Realtime, TR-REC, Step
Songs	50
Arpeggio Style	
Preset	128
User	128
Chord Memory	
Preset	64
User	128
RPS Set	50
Pattern Set	50

Effects Section

Reverb	1 (4 types)
Compressor	1 (1 type)
Multi-effects (MFX)	2 (MFX1: 38 types) (MFX2: 47 types)
Pitch Shifter (for external input)	1 (1 type)

Mastering Section

3-bands Compressor1 (1 type)

Expansion Slot

Wave Expansion Board SRX Series: 1 slot

DIMM: 1 slot

Number of pins:	168-pin
Speed:	100 MHz (PC100 CL=2) 133 MHz (PC133 CL=3)
Voltage:	3.3 V
Capacity:	128 MB 256 MB
Board height:	38 mm or less

External Memory

SmartMedia card: 1 slot
8MB/16MB/32MB/64MB/128MB (3.3V)

Controllers, Display

Display
- QVGA LCD
- BPM Display: 7 segment 4 character (LED)

Control Knob
- Pitch: 1 (FINE TUNE/COARSE TUNE)
- Filter: 2 (CUTOFF, RESONANCE)
- LFO 1: 2 (DEPTH/RATE, WAVEFORM)
- Sound Others: 3 (FAT, RANDOM MODIFY, MATRIX CONTROL 1)
- Effects: 3 (TYPE, C1, C2)
- Mastering: 2 (ATTACK, RELEASE)
- OUTPUT Volume: 1
- INPUT Volume: 1

Control Slider
- Envelope: 13 (Pitch/Filter/Amp)
- Part Mixer: 8
- Turntable Emulation (100 mm): 1

Other Controllers
- Twin D Beam Controller
- Velocity Pads

Connectors

MIX OUTPUT Jacks (L (MONO), R)
DIRECT 1 OUTPUT Jacks (L (MONO), R)
DIRECT 2 OUTPUT Jacks (L (MONO), R)
IPUT Jacks (L (MONO), R)
Headphones Jack
MIDI Connectors (IN, OUT)
USB Connector
Digital Audio Interface
IN/OUT (OPTICAL, COAXIAL)
AC Inlet

Power Supply

AC 117 V, AC 230 V, AC 240 V

Power Consumption

20 W

Dimensions

491 (W) x 386 (D) x 123 (H) mm
19-3/8 (W) x 15-1/4 (D) x 4-7/8 (H) inches

Weight

6.0 kg
13 lbs 4 oz

Accessories

Owner's Manual English(#72128501)
Japanese(#72128389)
Sample Data (Audio) CD(#********)

Power Cord	120V (#02129289)
	230V(#02894345)
	230VE(#02894234)
	240VA(#02129301)

Card Protecter(#01346312)

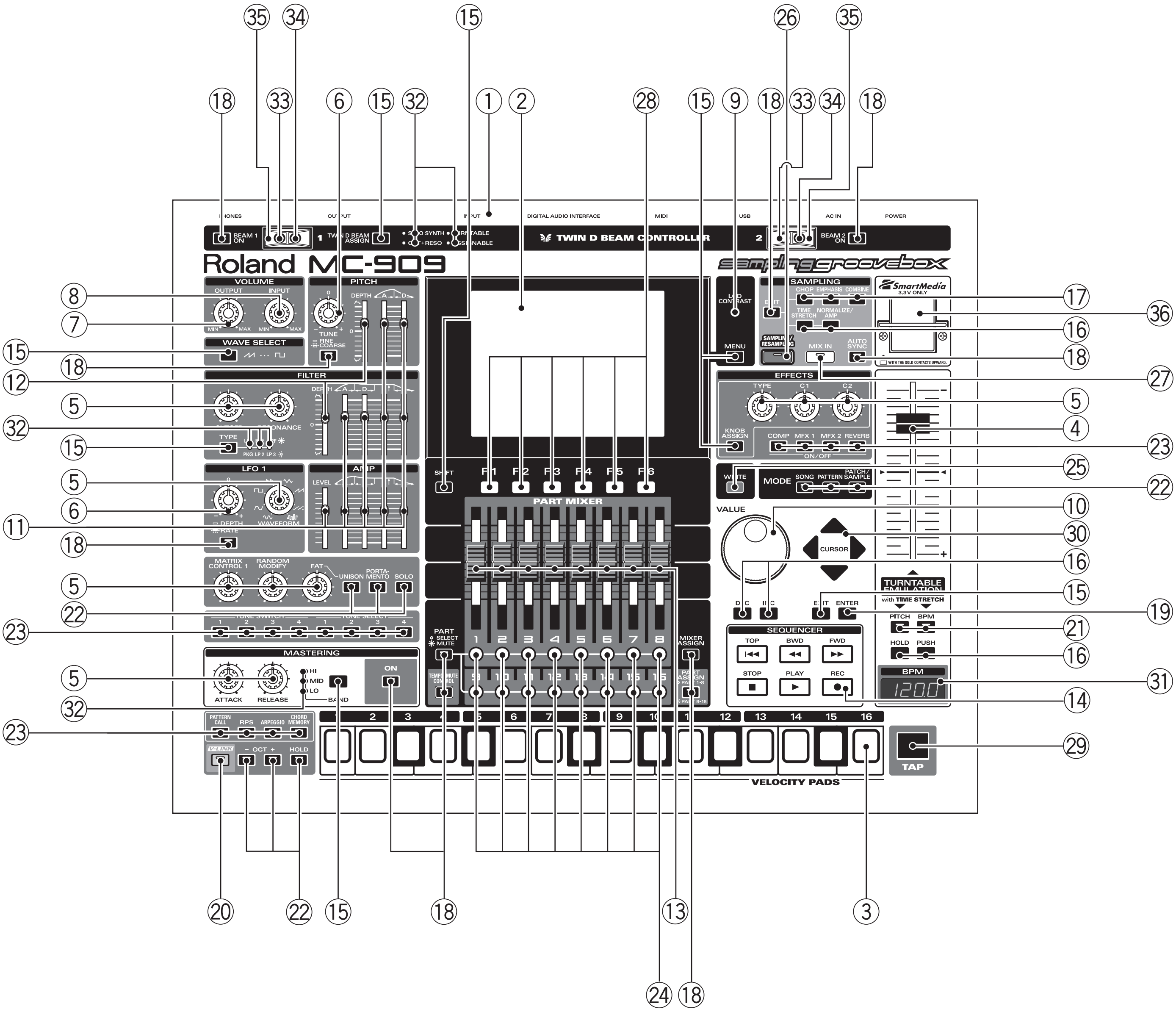
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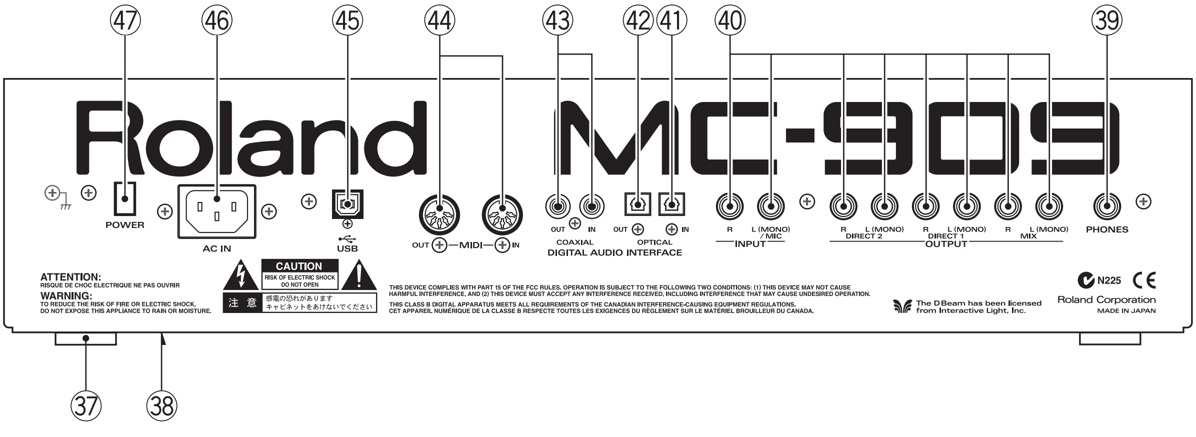
Wave Expansion Board: SRX Series

MIDI IMPLEMENTATION	English(#17041253)
	Japanese(#17041252)

* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

LOCATION OF CONTROLS



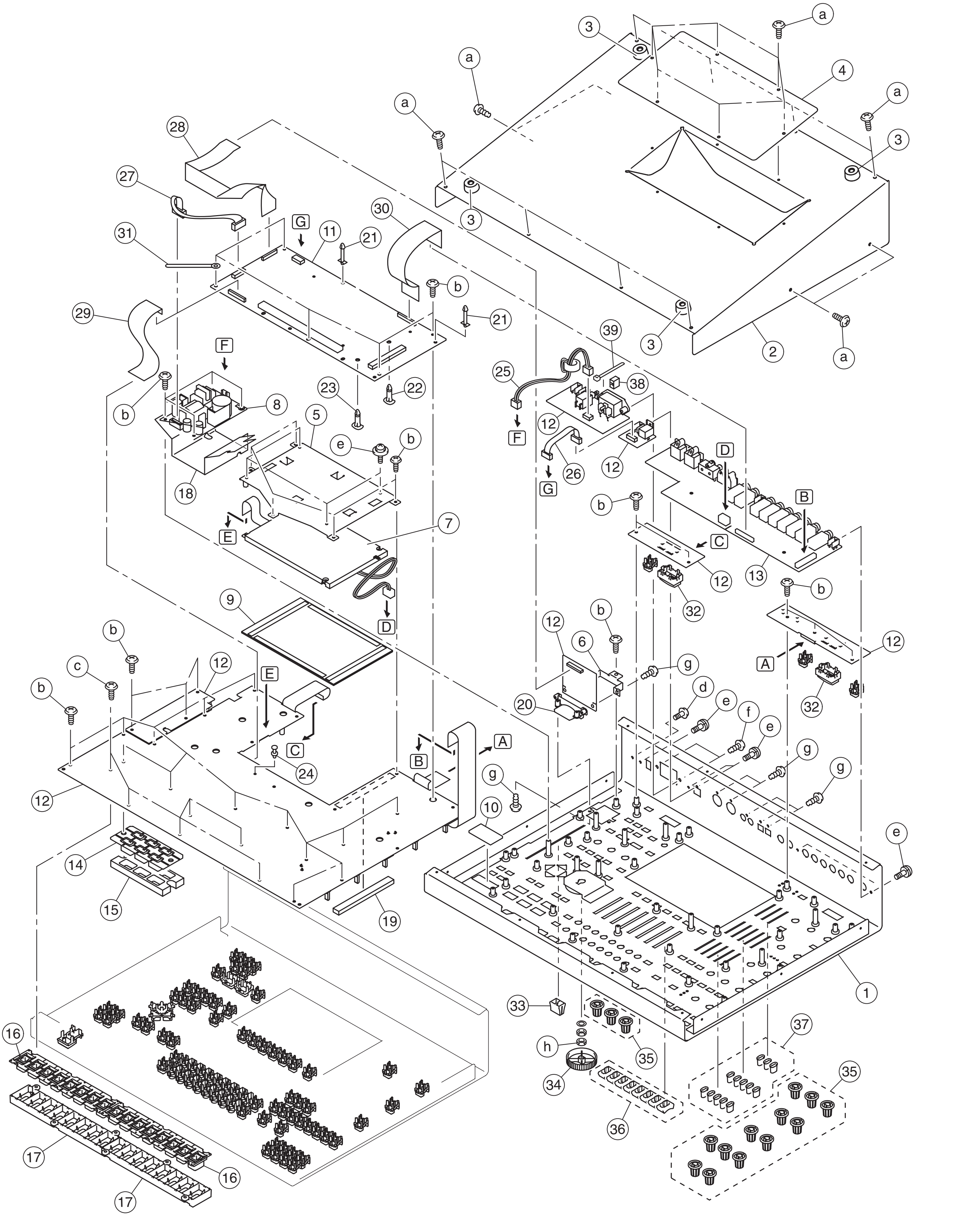


LOCATION OF CONTROLS PARTS LIST

No	PART CODE	Part name	Description	Q'TY
1	03017789	TOP PANEL		1
2	03017756	DISPLAY COVER		1
	01124234	LM320191	LCD UNIT	1
3	03017690	RUBBER SW A		2
	03017701	RUBBER SW ESCT		2
	03231801	SML-311UT	LED (RED)	17
4	01904101	J S-KNOB	L BLK/LCG	1
	01903778	100M/M SLIDE POT. RSA0N1144		1
5	02452912	J R-KNOB	SF-A BLK/LCG	15
	03231745	11M/M ROTARY POT. RK11K1140A23		11
6	02452912	J R-KNOB	SF-A BLK/LCG	15
	03231734	11M/M ROTARY POT. RK11K114001Z		2
7	02452912	J R-KNOB	SF-A BLK/LCG	15
	03232456	14M/M ROTARY POT. RK14K12D0DON		1
8	02452912	J R-KNOB	SF-A BLK/LCG	15
	03231756	14M/M ROTARY POT. RK14K12D0D0Q		1
9	03231723	9M/M ROTARY POT. RK09K1130A5R		1
10	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
	40235189	RING	SE-9	1
	03122134	EC12E2420802		1
11	01346112	KNOB	MOLD KNOB BLK	13
	03231767	30M/M SLIDE POTENTIOMET	RS30111A602N	11
12	01346112	KNOB	MOLD KNOB BLK	13
	03231778	30M/M SLIDE POTENTIOMET	RS30111C600G	2
13	01902289	U S-KNOB	M BLK LCG	8
	03232056	45M/M SLIDE POTENTIOMET	RS45111A900F	8
14	03014223	RUBBER SW B		1
	03017712	SPACER		1
	03231801	SML-311UT	LED (RED)	17
	01784978	SML-020MLT	LED (RED/GREEN)	1
15	00900189	D S-KEYTOP	SX1H BLK	17
	01343478	SKQNAE	TACT SWITCH	87
16	00900190	D S-KEYTOP	SX2H BLK	
	01343478	SKQNAE	TACT SWITCH	87
17	00904245	D S-KEYTOP	SX3H BLK	
	01343478	SKQNAE	TACT SWITCH	87
18	00900145	D S-KEYTOP	SD1H BLK	
	01343478	SKQNAE	TACT SWITCH	87
	00348490	SLR-325VCT31	LED (RED)	42
19	00900145	D S-KEYTOP	SD1H BLK	
	01343478	SKQNAE	TACT SWITCH	87
	03122112	SLR-343BBT3F	LED (BLUE)	2
20	01016867	D S-KEYTOP	SD1H LCG	1
	01343478	SKQNAE	TACT SWITCH	87
	03122112	SLR-343BBT3F	LED (BLUE)	2
21	00900156	D S-KEYTOP	SD2H BLK	7
	01343478	SKQNAE	TACT SWITCH	87
	00348490	SLR-325VCT31	LED (RED)	42
22	00900167	D S-KEYTOP	SD3H BLK	3
	01343478	SKQNAE	TACT SWITCH	87
	00348490	SLR-325VCT31	LED (RED)	42
23	00900178	D S-KEYTOP	SD4H BLK	4
	01343478	SKQNAE	TACT SWITCH	87
	00348490	SLR-325VCT31	LED (RED)	42
24	02450201	Y C-KEYTOP	MX4H CLR	4
	01343478	SKQNAE	TACT SWITCH	87
	01787045	SLR-325DCT31	LED (ORANGE)	16
25	01129767	D S-KEYTOP	SX1H DRD	1
	01343478	SKQNAE	TACT SWITCH	87
26	22495344	DS-KEYTOP	MD1H RED BRWN(W/WINDOW)	1
	01343478	SKQNAE	TACT SWITCH	87
	00348490	SLR-325VCT31	LED (RED)	42
27	00125734	D S-KEYTOP	MD1H LCG	1
	01343478	SKQNAE	TACT SWITCH	87
	00348490	SLR-325VCT31	LED (RED)	42
28	01013301	DS-KEYTOP	SX1H LCG	6
	01343478	SKQNAE	TACT SWITCH	87
29	02016390	Y S-KEYTOP	LX1H BLK	1
	03231790	SKPDAED010	TACT SWITCH	1
30	01234090	D T-KEYTOP	MX4B BLK	1
	01343478	SKQNAE	TACT SWITCH	87
31	03017767	LED COVER		1
	01903512	LNM223KS01C	7SEG LED	2
32	00899023	LNJ282RKRXE	LED (RED)	10
	01343090	LED SPACER		4
33	03126134	TLN233	LED	2
34	01900612	TPS611	DIODE	2

No	PART CODE	Part name	Description	Q'TY
35	01343089	ESCUTCHEON	D-BEAM CONTROLLER ESCT BLK	2
36	01343101	D C-ESCT	D C-ESCT BX1H BLK	1
	01780712	CN015P-3013-0	CARD CONECTR	1
37	12359139	RUBBER FOOT	FF-018 BLK	4
38	03017790	BOTTOM COVER		1
39	13449284	HLJ7001-01-3010	6.5MM JACK	1
40	13449283	HLJ7101-01-3010	6.5MM JACK	8
41	02565401	GP1FA501RZ	OPTICAL CONNECTOR RX	1
42	02565390	GP1FA501TZ	OPTICAL CONNECTOR TX	1
43	03231812	YKC21-4173	PIN JACK (ORG)PIN X 2	1
44	13429825	YKF51-5054 2PZ	MIDI CONNECTOR	1
45	02781101	YKF45-0020	USB CONNECTOR	1
46	02129389	M1818A(PWI1818) 2P	AC INLET	1
47	12499175	G S-BUTTON	S1H BLK 249-175	1
	01676512	SDKLA1-B	PUSH SWITCH	1

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

[PARTS]

No	PART CODE	Part name	Description	Q'TY
1	03017789	TOP PANEL		1
2	03017790	BOTTOM COVER		1
3	12359139	RUBBER FOOT	FF-018 BLK	4
4	03017778	EXP COVER		1
5	03017890	DISPLAY HOLDER		1
6	03017745	D C-ESCT HOLDER		1
7	01124234	LM320191	LCD UNIT	1
8	01785823	A1DU2L3B034	SWITCHING REGULATOR	1
9	03017756	DISPLAY COVER		1
10	03017767	LED COVER		1
11	72128412	MAIN BOARD ASSY		1
12	72128401	PANEL BOARD ASSY		1
13	72128390	JACK BOARD ASSY		1
14	03014223	RUBBER SW B		1
15	03017712	SPACER		1
16	03017690	RUBBER SW A		2
17	03017701	RUBBER SW ESCT		2
18	02894367	INSULATING COVER	DA-2496 SW-PS	1
19	03230101	ISOLATOR		1
20	01343101	D C-ESCT	D C-ESCT BX1H BLK	1
21	02238145	PWB SPACER	WLS-20-0	2
22	02019034	PWB SPACER	RSPLS-12L	1
23	01902756	PWB SPACER	RSPS-12L	1
24	03017867	CARD SPACER	MPS-10-0	1
25	03120801	WIRING W3		1
26	03017956	WIRING W1		1
27	02679390	WIRING	7X150-P2.5-XHP-XHP-F	1
28	03017945	BAN CARD	BNCD-P=1.00-K-24-260	1
29	02343945	BAN CARD	BNCD-P=1.00-K-28-100	1
30	03017934	BAN CARD	BNCD-P=1.00-K-30-100	1
31	40017356	COATING CLIP	CS-4	1
32	01343089	ESCUTCHEON	D-BEAM CONTROLLER ESCT BLK	2
33	01904101	J S-KNOB	L BLK/LCG	1
34	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
35	02452912	J R-KNOB	SF-A BLK/LCG	15
36	01902289	U S-KNOB	M BLK LCG	8
37	01346112	KNOB	MOLD KNOB BLK	13
38	12499175	G S-BUTTON	S1H BLK 249-175	1
39	40016512	INSULOK TIE	80M/M T-18S	1

[SCREW]

No	PART CODE	Part name	Description	Q'TY
a	40011090	SCREW 3X6	BINDING TAPTITE B BZC	18
b	40011056	SCREW 3X6	BINDING TAPTITE B ZC	39
c	40011101	SCREW 3X8	BINDING TAPTITE B BZC	6
d	40230590	SCREW M3X10	BINDING MACHINE NI	1
e	40011490	SCREW M3X6	PAN MACHINE W/SW BZC	9
f	40238501	SCREW 4X8	BINDING TAPTITE P BZC	2
g	40011312	SCREW 3X8	BINDING TAPTITE P BZC	10
h	40235189	RING	SE-9	1

PARTS LIST

SAFETY PRECAUTIONS:
The parts marked ⚠ have safety-related characteristics. Use only listed parts for replacement.

CONSIDERATION ON PARTS ORDRING
When ordering any parts listed in the parts list, please specify the following items in the order sheet.

	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER
Ex.	10	22575241	Sharp Key	C-20/50
	15	2247017300	Knob (orange)	DAC-15D

Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

NOTE: The parts marked # are new. (initial parts)

CASING

#	03017756	DISPLAY COVER		1
#	03017767	LED COVER		1
#	03017778	EXP COVER		1
#	03017701	RUBBER SW ESCT		2
	01343089	ESCUTCHEON	D-BEAM CONTROLLER ESCT BLK	2
	01343101	D C-ESCT	D C-ESCT BX1H BLK	1
#	03017789	TOP PANEL		1
#	03017790	BOTTOM COVER		1

CHASSIS

#	03017745	D C-ESCT HOLDER	1
#	03017890	DISPLAY HOLDER	1

KNOB, BUTTON

	00900167	D S-KEYTOP	SD3H BLK	3
	00900156	D S-KEYTOP	SD2H BLK	7
	02450201	Y C-KEYTOP	MX4H CLR	4
	02016390	Y S-KEYTOP	LX1H BLK	1
	01234090	D T-KEYTOP	MX4B BLK	1
	01129767	D S-KEYTOP	SX1H DRD	1
	01016867	DS KEYTOP	SD1H LCG	1
	01013301	DS-KEYTOP	SX1H LCG	6
	00900189	D S-KEYTOP	SX1H BLK	17
	00900178	D S-KEYTOP	SD4H BLK	4
	00125734	D S-KEYTOP	MD1H LCG	1
	00900190	D S-KEYTOP	SX2H BLK	
	00904245	D S-KEYTOP	SX3H BLK	
	00900145	D S-KEYTOP	SX1H BLK	
	12499175	G S-BUTTON	S1H BLK 249-175	1
	22495344	DS-KEYTOP	MD1H RED BRWN(W/WINDOW)	1
	01346112	KNOB	MOLD KNOB BLK	13
	02452912	J R-KNOB	SF-A BLK/LCG	15
	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
	01904101	J S-KNOB	L BLK/LCG	1
	01902289	U S-KNOB	M BLK LCG	8
#	03017690	RUBBER SW A		2
#	03014223	RUBBER SW B		1

SWITCH

⚠	01676512	SDKLA1-B	PUSH SWITCH	SW85 on PANEL SHEET	1
	03231790	SKPDAED010	TACT SWITCH	SW84 on PANEL SHEET	1
	01343478	SKQNAE	TACT SWITCH	SW37,SW36,SW35,SW34,SW33,SW31,SW38,SW46,SW32,SW39,SW40,SW41,SW42,SW43,SW30,SW45,SW22,SW47,SW44,SW19,SW11,SW12,SW13,SW14,SW15,SW16,SW24,SW18,SW29,SW20,SW21,SW57,SW23,SW48,SW25,SW26,SW27,SW28,SW17,SW79,SW55,SW72,SW73,SW74,SW75,SW76,SW70,SW78,SW69,SW80,SW81,SW82,SW83,SW86,SW87,SW88,SW90,SW77,SW58,SW50,SW51,SW52,SW53,SW54,SW10,SW71,SW89,SW49,SW59,SW60,SW61,SW62,SW63,SW64,SW65,SW66,SW67,SW56,SW4,SW1,SW3,SW8,SW7,SW6,SW5,SW91,SW9 on PANEL SHEET	87

JACK, EXT TERMINAL

	13449283	HLJ7101-01-3010	6.5MM JACK	JK8,JK3,JK5,JK9,JK4,JK2,JK1,JK7 on JACK BOARD	8
	13449284	HLJ7001-01-3010	6.5MM JACK	JK6 on JACK BOARD	1
⚠	02129389	M1818A(PWI1818) 2P	AC INLET	JK1 on PANEL SHEET	1

JACK, EXT TERMINAL

	02781101	YKF45-0020	USB CONNECTOR	JK1 on MAIN BOARD,JK2 on PANEL SHEET	1
	01780712	CN015P-3013-0	CARD CONECTR	CN7 on PANEL SHEET	1
	03231812	YKC21-4173	PIN JACK (ORG)PIN X 2	JK10 on JACK BOARD	1
	13429825	YKF51-5054 2PZ	MIDI CONNECTOR	JK11 on JACK BOARD	1

DISPLAY UNIT

	01124234	LM320191	LCD UNIT		1
	NOTE: Replacement LM320191 should be made on a unit base.				
	01903512	LNM223KS01C	7SEG LED	LED97,LED96 on PANEL SHEET	2
	NOTE: Replacement LNM223KS01C should be made on a unit base.				

POWER SUPPLY UNIT

⚠	01785823	A1DU2L3B034	SWITCHING REGULATOR		1
	NOTE: Replacement A1DU2L3B034 should be made on a unit base.				

PCB ASSY

#	72128390	JACK BOARD ASSY			1
#	72128401	PANEL BOARD ASSY			1
	NOTE: 'PANEL BOARD ASSY' includes the following parts.				
	01343090	LED SPACER			4
#	72128412	MAIN BOARD ASSY			1

IC

#	03014812	HD6433061G43FP	IC (16BIT CPU)	IC2 on PANEL SHEET	1
	00129278	SSC1080F0B	IC	IC20 on PANEL SHEET	1
	01455956	TC223C660CF-503	IC (RA08-503)	IC27 on MAIN BOARD	1
	02231767	RA0A-101 (TC223C080AF-101)	IC (DSP)	IC22 on MAIN BOARD	1
#	02782778	TC200E06 (PPC)	IC (I/F)	IC4 on MAIN BOARD	1
#	02900456	TC200E1005AF-11 (BA)	IC (I/F)	IC21 on MAIN BOARD	1
#	03017601	TC58256AFT	IC (FLASH MEMORY)	IC53 on MAIN BOARD	1
#	03017590	UDA1351TS	IC (DIR DAC)	IC75 on MAIN BOARD	1
	02454878	M62220FP-600C	IC (REGULATOR) DC-DC IC	IC55 on MAIN BOARD	1
	02451912	HD74LV00ATELL	IC (CMOS)	IC74 on MAIN BOARD	1
	02451723	HD74LV138ATELL	IC (CMOS)	IC6,IC8 on PANEL SHEET	2
	01567190	TC74VHCU04F(EL)	IC (CMOS)	IC6 on JACK BOARD	1
	15269219H0	HD74LS05FPEL	IC (TTL)	IC7 on JACK BOARD	1
	01783523	TC74VHCT245AFT(EL)	IC (CMOS)	IC3 on PANEL SHEET	1
	00458312	NJM2360M	IC (REGULATOR)	IC4 on PANEL SHEET	1
	02451690	HD74LV08ATELL	IC (CMOS)	IC12 on MAIN BOARD	1
	00344390	TA7805F(TE16L)	IC (REGULATOR)	IC58 on MAIN BOARD	1
	15229706	TLP552	PHOTO COUPLER	IC9 on JACK BOARD	1
	15289105	UPC4570G2-E2	IC (BIPOLAR OP AMP)	IC22,IC23,IC24,IC28,IC25 on PANEL SHEET	5
	15289128	BA10324AF	IC (OP AMP)	IC12 on PANEL SHEET	1
	15189261	M5218AFP-600E	IC (BIPOLAR OP AMP)	IC3,IC4,IC5,IC8,IC1,IC2 on JACK BOARD,IC61,IC64,IC68,IC70,IC71,IC59 on MAIN BOARD	6
	01121834	TC7W74FU TE12L	IC	IC21 on PANEL SHEET	1
	02892334	TC74LCX245FT(EL)	IC (CMOS)	IC3,IC5 on MAIN BOARD	2
#	02900690	P2027A-08TR	IC	IC89 on MAIN BOARD	1
	01677689	HD74HC238FPEL	IC (CMOS)	IC27,IC26 on PANEL SHEET	2
	02675645	HD74LV04ATELL	IC (CMOS)	IC10,IC17 on MAIN BOARD	2
	01348912	TC7SH08FU(TE85L)	IC (CMOS)	IC84,IC45 on MAIN BOARD	2
	01348956	TC7SH00FU(TE85L)	IC (CMOS)	IC82 on MAIN BOARD	1
	15199937	M51953BFP-600C	IC (RESET)	IC18 on MAIN BOARD	1
	02565390	GP1FA501TZ TX	IC (OPTICAL CONNECTOR)	CN3 on JACK BOARD	1
	02675656	HD74LV11ATELL	IC (CMOS)	IC11,IC13,IC31 on MAIN BOARD	3
	02675689	HD74LV245ATELL	IC (CMOS)	IC7,IC40,IC30,IC51,IC8,IC39,IC32,IC35,IC34,IC44,IC23,IC29 on MAIN BOARD	12
	02673812	HY57V641620HGT-P	IC (DRAM)	IC6,IC20,IC24,IC2 on MAIN BOARD	4
	02568489	GM71V18163CT-6	IC (DRAM)	IC25 on MAIN BOARD	1
	02675678	HD74LV139ATELL	IC (CMOS)	IC79,IC38,IC15 on MAIN BOARD	3
	02565401	GP1FA501RZ RX	IC (OPTICAL CONNECTOR)	CN2 on JACK BOARD	1
	01348945	TC7SH32FU(TE85L)	IC (CMOS)	IC81,IC41 on MAIN BOARD	2
	01349590	TC7WU04FU(TE12L)	IC (CMOS)	IC26,IC16 on MAIN BOARD	2
	01890367	TC74VHC175FT(EL)	IC (COMS)	IC52,IC48 on MAIN BOARD	2
	01785178	TC9271FS	IC (DIGITAL OUT IF)	IC62 on MAIN BOARD	1
	15259884	TC7S08F(TE85L)	IC (CMOS)	IC5 on PANEL SHEET	1
	02671378	LC324260BJ-60-TLM	IC (DRAM)	IC37 on MAIN BOARD	1
	02568478	M66273FP	LCD-DRIVER	IC49 on MAIN BOARD	1
	********	MBM29LV160BE70	IC (FLASH MEMORY)	IC19 on MAIN BOARD	1

IC

02900978	M66291GP	IC (USB CONTROLLER)	IC36 on MAIN BOARD	1

TRANSISTOR

15319105	2SC3326-A	TRANSISTOR	Q11,Q10,Q9,Q8,Q7,Q6,Q5,Q4 on JACK BOARD	8
02670989	DTB113ZK-146T	TRANSISTOR	Q29 on PANEL SHEET	1
15139123	2SK184-GR(TPE4)	TRANSISTOR	Q3 on JACK BOARD	1
02671023	2SC3052-T12-1E	TRANSISTOR	Q13,Q14 on JACK BOARD	2
15309104	2SA1586-GR(TE85R)	TRANSISTOR	Q11,Q12 on MAIN BOARD	2
02671256	RT1P141C-T12-1	TRANSISTOR	Q16 on JACK BOARD	1
15309101	2SA1037AKT146R	TRANSISTOR	Q1,Q12 on JACK BOARD	2
02671267	RT1N141C-T12-1	TRANSISTOR	Q13,Q14 on MAIN BOARD,Q2,Q30,Q1 on PANEL SHEET	3
00562012	2SC3265-Y(TE85R)	TRANSISTOR	Q28,Q32 on PANEL SHEET	2
15319101	2SC2412KR T146	TRANSISTOR	Q55,Q3,Q4,Q51,Q52,Q54,Q56,Q57,Q58,Q53 on PANEL SHEET	10
15329103T0	2SK880-GR(TE85R)	FET	Q7,Q9,Q10,Q8 on MAIN BOARD	4
02017512	PW MOSFET 2SJ325-Z-E1	TRANSISTOR	Q6 on MAIN BOARD	1

DIODE

00899023	LNJ282RKRXE	LED	LED102,LED90,LED88,LED41,LED33,LED31,LED25,LED17,LED9,LED89 on PANEL SHEET	10
01787045	SLR-325DCT31	LED (ORANGE)	LED76,LED35,LED27,LED43,LED49,LED50,LED54,LED55,LED58,LED59,LED62,LED44,LED63,LED67,LED72,LED68 on PANEL SHEET	16
01784978	SML-020MLT	LED	LED94 on PANEL SHEET	1
00348490	SLR-325VCT31	LED (RED)	LED87,LED51,LED64,LED73,LED77,LED80,LED81,LED84,LED86,LED93,LED95,LED100,LED101,LED56,LED47,LED85,LED12,LED69,LED46, LED3,LED4,LED5,LED8,LED11,LED6,LED13,LED14,LED16,LED19,LED20,LED45,LED21,LED40,LED38,LED36,LED37,LED32,LED30,LED29,LED28,LED24,LED22 on PANEL SHEET	42
01900612	TPS611	DIODE	Q35,Q34 on PANEL SHEET	2
01897189	MA147-(TX)	ARRAY DIODE	DA5,DA2,DA4,DA3 on MAIN BOARD,DA84,DA95,DA88,DA87,DA83,DA60,DA64 on PANEL SHEET	7
00129767	RD10M-T1B B2	ZENER DIODE	D2 on JACK BOARD	1
01017512	RB411D T146	SCHOTTKY DIODE	D1 on PANEL SHEET	1
15339412	U1BC44(TE12L)	DIODE	D1 on JACK BOARD	1
15339130	MA142WK-(TX)	ARRAY DIODE	DA9,DA6,DA8,DA7 on MAIN BOARD,DA90,DA71,DA48,DA85,DA51,DA52,DA55,DA56,DA65,DA66,DA67,DA68,DA1,DA70,DA45,DA72,DA73,DA74,DA75,DA76,DA77,DA78,DA79,DA80,DA81,DA82,DA86,DA92,DA69,DA19,DA2,DA3,DA4,DA6,DA7,DA9,DA10,DA12,DA13,DA15,DA49,DA18,DA44, DA34,DA42,DA41,DA38,DA16,DA35,DA22,DA32,DA31,DA29,DA28,DA26,DA25,DA23,DA37 on PANEL SHEET	4
15339105	DAN202K T146 (CHIP)	ARRAY DIODE	DA3,DA1,DA2 on JACK BOARD	3
01897178	MA142WA-(TX)	ARRAY DIODE	DA27,DA39,DA93,DA53,DA47,DA40,DA94,DA21,DA24,DA20,DA17,DA14,DA11,DA8,DA5,DA46 on PANEL SHEET	16
03231801	SML-311UT	LED (RED)	LED2,10,18,26,34,42,48,53,57,61,66,70,74,78,71,75,79 on PANEL SHEET	17
03122112	SLR-343BBT3F	LED		2
03126134	TLN233	LED		2

RESISTOR

00567212	RPC05T 332 J	MTL.FILM RESISTOR	R104,R66,R103,R102,R101,R100,R99,R98,R60,R36,R20,R4,R105,R48 on JACK BOARD,R197,R184,R190,R225,R232,R205 on MAIN BOARD,R31 on PANEL SHEET	1
00567289	RPC05T 103 J	MTL.FILM RESISTOR	R59,R1,R15,R45,R65,R73,R35 on JACK BOARD,R107,R84,R92,R93,R94,R95,R105,R82,R109,R110,R111,R112,R114,R118,R119,R103,R27,R33,R134,R13,R17,R22,R90,R24,R80,R35,R36,R39,R40,R42,R43,R44,R23,R264,R25,R313,R266,R139,R248 ,R247,R244,R243,R242,R164,R238,R195,R188,R176,R175,R174,R166,R165,R311,R241 on MAIN BOARD,R40,R1,R3,R7,R28 on PANEL SHEET	5
00567323	RPC05T 223 J	MTL.FILM RESISTOR	R22,R21,R33,R34 on JACK BOARD	4

RESISTOR

00567067	RPC05T 221 J	MTL.FILM RESISTOR	R31,R79,R82,R83,R18 on JACK BOARD,R198,R191,R185,R206,R226,R233 on MAIN BOARD,R258,R257 on PANEL SHEET	2
00567234	RPC05T 392 J	MTL.FILM RESISTOR	R252,R256,R245,R243 on PANEL SHEET	4
00567245	RPC05T 472 J	MTL.FILM RESISTOR	R97,R85,R74 on JACK BOARD,R161,R194,R193,R163,R159,R53,R171 on MAIN BOARD,R222 on PANEL SHEET	1
00567201	RPC05T 272 J	MTL.FILM RESISTOR	R107,R106,R28,R12 on JACK BOARD	4
00567256	RPC05T 562 J	MTL.FILM RESISTOR	R43,R55 on JACK BOARD,R200,R196,R189,R218,R180,R228 on MAIN BOARD	6
00567045	RPC05T 151 J	MTL.FILM RESISTOR	R269,R270 on PANEL SHEET	2
00567001	RPC05T 750 J	MTL.FILM RESISTOR	R81,R80 on JACK BOARD	2
00566867	RPC05T 100 J	MTL.FILM RESISTOR	R260,R261,R262,R263 on MAIN BOARD	4
00566912	RPC05T 220 J	MTL.FILM RESISTOR	R102,R339,R324,R281,R270,R104,R340,R100,R45,R34,R130 on MAIN BOARD	11
00567112	RPC05T 471 J	MTL.FILM RESISTOR	R169,R167,R177,R179 on MAIN BOARD,R24,R20,R13,R14,R15,R21,R22,R23 on PANEL SHEET	8
00566934	RPC05T 330 J	MTL.FILM RESISTOR	R7,R8,R10,R72,R302,R62,R63,R297,R76,R71,R70,R74,R75,R298,R332,R336,R335,R300,R333,R314,R329,R328,R1,R2,R3,R4,R6,R326,R325,R323,R334 on MAIN BOARD	31
00567078	RPC05T 271 J	MTL.FILM RESISTOR	R134 on PANEL SHEET	1
00566989	RPC05T 560 J	MTL.FILM RESISTOR	R68,R272,R62,R66,R70,R72,R74,R240,R261,R263,R264,R266,R271,R267,R262 on PANEL SHEET	15
00567312	RPC05T 183 J	MTL.FILM RESISTOR	R235,R106 on MAIN BOARD,R39 on PAN-EL SHEET	1
00346134	MCR25 JZH J 1R0	MTL.FILM RESISTOR	R33 on PANEL SHEET	1
00567367	RPC05T 393 J	MTL.FILM RESISTOR	R41 on PANEL SHEET	1
00567190	RPC05T 222 J	MTL.FILM RESISTOR	R133 on MAIN BOARD,R253,R244 on PAN-EL SHEET	2
00566967	RPC05T 470 J	MTL.FILM RESISTOR	R287,R79,R81,R131,R282,R283,R284,R294,R337,R286,R338,R327,R293,R292,R291,R290,R289,R288,R285 on MAIN BOARD,R276,R60,R273,R275,R64,R260,R274 on PANEL SHEET	7
00567478	RPC05T 334 J	MTL.FILM RESISTOR	R216,R173 on MAIN BOARD	2
00567034	RPC05T 121 J	MTL.FILM RESISTOR	R89 on JACK BOARD ,R191,R48,R50,R52,R56,R215,R217,R54 on PANEL SHEET	8
00567456	RPC05T 224 J	MTL.FILM RESISTOR	R194,R205 on PANEL SHEET	2
00567445	RPC05T 184 J	MTL.FILM RESISTOR	R212,R170 on MAIN BOARD	2
00567412	RPC05T 104 J	MTL.FILM RESISTOR	R87,R70,R51,R93,R52,R58,R57,R69,R63,R64,R47,R46,R40,R39,R27,R10 on JACK BOARD,R199,R168,R172,R186,R192,R211,R222,R227,R236,R208 on MAIN BOARD,R251,R93,R96,R248,R111,R114,R123,R128,R131,R136,R137 on PANEL SHEET	11
00567389	RPC05T 563 J	MTL.FILM RESISTOR	R14 on JACK BOARD,R255,R256 on MAIN BOARD,R201,R212 on PANEL SHEET	2
00567378	RPC05T 473 J	MTL.FILM RESISTOR	R3,R13,R71,R75,R78,R2 on JACK BOARD,R231,R234,R229 on MAIN BOARD	3
00566990	RPC05T 680 J	MTL.FILM RESISTOR	R277 on MAIN BOARD	1
02679290	RA4C1632-103-J	RESISTOR-ARRAY	RA68,RA88,RA71,RA66,RA65,RA49,RA25,RA48,RA30,RA26,RA72 on MAIN BOARD	11
01906667	MNR14 EOAB J 100	RESISTOR-ARRY	RA13,RA6,RA14,RA4 on PANEL SHEET	4
01906678	MNR14 EOAB J 103	RESISTOR-ARRY	RA1,RA12,RA2 on PANEL SHEET	3
02456878	EXB2HV220JV	RESISTOR-ARRAY	RA73,RA67,RA64,RA62,RA56,RA77,RA84,RA85,RA86,RA9,RA40,RA37,RA36,RA34,RA60,RA20,RA3,RA8,RA27,RA50,RA52,RA54,RA43,RA57,RA31,RA33 on MAIN BOARD	26
15419702	RR1220P-102-D 1K OHM 1/10W	MTL.FILM RESISTOR	R155 on MAIN BOARD	1
15229941	10KD-5	THERMISTOR RESISTOR	R30 on PANEL SHEET	1
01455856	RR1220Q-680-D	MTL.FILM RESISTOR	R152 on MAIN BOARD	1
02780323	RA4C1632-220-J	RESISTOR-ARRAY	RA58,RA53 on MAIN BOARD	2
02780312	RA4C1632-0R0-J	RESISTOR-ARRAY	RA91 on MAIN BOARD	1
00567178	RPC05T 152 J	MTL.FILM RESISTOR	R86 on JACK BOARD,R148 on MAIN BOARD,R34 on PANEL SHEET	1
02679323	RA4C1632-330-J	RESISTOR-ARRAY	RA45,RA6,RA2 on MAIN BOARD	3
01906656	MNR14 EOAB J 000	RESISTOR-ARRAY	RA11,RA10,RA3 on PANEL SHEET	3
00567023	RPC05T 101 J	MTL.FILM RESISTOR	R50,R91,R68,R62,R16,R24,R6,R38,R77,R90,R29 on JACK BOARD,R183,R182,R181,R245,R246,R129,R278,R280,R315,R316,R274,R128,R127,R126,R124,R123,R122,R121,R58,R57,R54,R51,R32,R319,R125,R318,R320,R321,R322,R330,R331,R317 on MAIN BOARD,	49

RESISTOR

				R250,R247,R209,R207,R198,R196,R132,R129,R126,R125,R124,R120,R119,R118,R127,R98,R87,R89,R86,R90,R91,R76,R94,R105,R75,R46,R104,R103,R102,R101,R100,R117,R82,R116,R115,R112,R109,R85,R88,R83,R81,R80,R79,R108,R107,R78,R77,R106,R84 on PANEL SHEET	
	02678534	EXB2HV103V	RESISTOR-ARRAY	RA69 on MAIN BOARD	1
	00567467	RPC05T 274 J	MTL.FILM RESISTOR	R230 on MAIN BOARD	1
#	02904445	EXB2HV330JV	REISTER-ARRAY	RA4,RA10,RA21,RA28 on MAIN BOARD	4
	00567556	RPC05T 105 J	MTL.FILM RESISTOR	R7 on JACK BOARD,R156,R99,R50 on MAIN BOARD	3
	00567345	RPC05T 333 J	MTL.FILM RESISTOR	R41,R53 on JACK BOARD	2
	00566923	RPC05T 270 J	MTL.FILM RESISTOR	R145,R146 on MAIN BOARD	2
	01013890	RR1220P-221-D 220 OHM 1/10W	MTL.FILM RESISTOR	R153,R154 on MAIN BOARD	2
	01011856	RPC05T 0R0 J	MTL.FILM RESIST0R	R310,R312,R157,R140,R30,R41,R68,R73,R83,R87,R96,R97,R98,R116,R214,R136,R309,R141,R144,R147,R150,R187,R237,R239,R258,R304,R305,R306,R307,R308,R120 on MAIN BOARD,R221,R220,R189,R188,R187,R140,R45,R2,R5,R10,R12,R25,R138,R32 on PANEL SHEET	14
	00567501	RPC05T 474 J	MTL.FILM RESISTOR	R36,R42,R37 on PANEL SHEET	3
	00567056	RPC05T 181 J	MTL.FILM RESISTOR	R210,R38,R199,R218,R219 on PANEL SHEET	5
	00567123	RPC05T 561 J	MTL.FILM RESISTOR	R202,R213 on PANEL SHEET	2
	00567134	RPC05T 681 J	MTL.FILM RESISTOR	R23,R37,R67,R5,R61,R49 on JACK BOARD,R158,R101,R55 on MAIN BOARD	3
	00567156	RPC05T 102 J	MTL.FILM RESISTOR	R92,R54,R42,R30,R17,R76,R84,R72 on JACK BOARD,R143,R91 on MAIN BOARD,R29,R211,R208,R200,R197,R164,R162,R44,R43,R6,R11 on PANEL SHEET	11
	15399952	MCR50JZH470 1/2W	CHIP RESISTOR	R56,R44 on JACK BOARD	2

POTENTIOMETER

	01903778	100M/M SLIDE POTENTIOMETER	RSA0N1144	VR34 on PANEL SHEET	1
	03231745	11M/M ROTARY POTENTIOMETER	RK11K1140A23	VR15,16,17,19,21,22,23,24,25,28,29 on PANEL SHEET	11
	03231734	11M/M ROTARY POTENTIOMETER	RK11K114001Z	VR26,27 on PANEL SHEET	2
	03232456	14M/M ROTARY POTENTIOMETER	RK14K12D0DON	VR40 on PANEL SHEET	1
	03231756	14M/M ROTARY POTENTIOMETER	RK14K12D0D0Q	VR39 on PANEL SHEET	1
	03231723	9M/M ROTARY POTENTIOMETER	RK09K1130A5R	VR1 on PANEL SHEET	1
	03231767	30M/M SLIDE POTENTIOMETER	RS30111A602N	VR2,3,4,6,7,8,9,10,11,13,14 on PANEL SHEET	11
	03231778	30M/M SLIDE POTENTIOMETER	RS30111C600G	VR5,12 on PANEL SHEET	2
	03232056	45M/M SLIDE POTENTIOMETER	RS45111A900F	VR30,31,32,33,35,36,37,38 on PANEL SHEET	8

CAPACITOR

	01674434	ECUV1H561JCV	CERAMIC CAPACITOR	C34 on PANEL SHEET	1
	01674701	ECJ1VF1E104Z 0.1UF/16VK	CERAMIC CAPACITOR	C6,C76,C54,C14,C75,C16,C86,C34,C87,C89,C91,C100,C101,C26,C22,C82,C65,C59,C60,C78,C62,C35,C67,C69,C71,C42,C74,C50,C48,C45,C43,C52 on JACK BOARD ,C199,C183,C184,C185,C189,C191,C192,C155,C197,C200,C203,C353,C355,C222,C224,C225,C247,C246,C196,C167,C157,C158,C159,C10,C160,C154,C161,C372,C163,C156,C169,C171,C173,C175,C176,C177,C178,C179,C182,C241,C162,C280,C227 ,C245,C229,C348,C230,C231,C233,C236,C242,C279,C226,C297,C299,C306,C307,C333,C334,C336,C338,C340,C342,C237,C261,C343,C238,C371,C252,C256,C248,C346,C344,C228,C259,C276,C374,C378,C381,C385,C267,C270,C272,C257,C350,C275,C373,C65,C78, C48,C49,C50,C51,C52,C53,C54,C55,C56,C57,C45,C64,C43,C66,C67,C68,C69,C70,C73,C74,C76,C77,C12,C1,C3,C79,C63,C19,C5,C6,C7,C8,C9,C2,C11,C352,C14,C15,C16,C47,C18,C82,C20,C21,C23,C30,C33,C34,C35,C36,C37,C38,C39,C40,C41,C42,C17,C129,C113,C153, C115,C116,C119,C120,C121,C122,C123,C124,C125,C83,C128,C112,C130,C131,C132,C133,C134,C135,C136,C137,C138,C140,C141,C142,C143,C144,C127,C97,C93,C96,C90,C89,C114,C88,C111,C87,C91,C84,C98,C100,C101,C102,C103,C105,C106,C107,C109,C110,C86 on MAIN BOARD,	32

CAPACITOR

			C39,C159,C151,C154,C155,C53,C157,C41,C42,C125,C40,C43,C123,C69,C70,C82,C84,C86,C140,C110,C148,C174,C126,C38,C141,C142,C145,C147,C92,C169,C8,C12,C176,C6,C35,C161,C163,C7,C167,C15,C172,C3,C175,C54,C178,C1,C17,C22,C165 on PANEL SHEET	
01674689	ECJ1VF1H473Z	CERAMIC CAPACITOR	C318,C283 on MAIN BOARD	2
01674334	ECUV1H101JCV	CERAMIC CAPACITOR	C98 on JACK BOARD,C117,C265,C243,C240,C234,C232,C198,C139,C99,C32 on MAIN BOARD,C37,C179 on PANEL SHEET	10
01674512	ECJ1VB1H222K	CERAMIC CAPACITOR	C174 on MAIN BOARD	1
01674423	ECUV1H471JCV	CERAMIC CAPACITOR	C57,C4,C12,C15,C25,C41,C21,C33 on JACK BOARD,C24,C25 on MAIN BOARD	8
01674212	ECUV1H220JCV	CERAMIC CAPACITOR	C28,C29 on PANEL SHEET	2
01674190	ECUV1H150JCV	CERAMIC CAPACITOR	C71,C26,C27,C72,C165,C263,C264,C164 on MAIN BOARD,C138,C137,C136,C135,C134,C132,C139,C131,C133,C130,C129,C128,C149,C144,C143,C150 on PANEL SHEET	16
01674612	ECJ1VB1H103K	CERAMIC CAPACITOR	C72 on JACK BOARD,C304 on MAIN BOARD,C72,C64,C66,C62,C71,C60,C25,C152,C46,C45,C24,C146,C26,C98,C68,C97,C58,C57,C56,C55,C63,C52,C73,C51,C50,C49,C48,C47,C61,C59,C96,C88,C75,C77,C78,C79,C74,C80,C76,C87,C95,C89,C10,C23,C14,C90,C93,C101,C121,C94,C20,C19,C18,C91 on PANEL SHEET	1
15369153	ECEV1CA220P	CAPACITOR	C284,C274 on MAIN BOARD	2
02126434	ECHU1H821JX5	POLYEST. CAPACITOR	C286,C323,C310,C328,C291,C300 on MAIN BOARD	6
02129534	ECJ1VB1H102K	CERAMIC CAPACITOR	C38,C30 on JACK BOARD	2
02891745	RC2-16V101M-T2	CHEMICAL CAPACITOR	C168,C36,C4,C156,C158,C162,C166,C170,C2 on PANEL SHEET	9
01120301	ECEV1CA221P 220UF	CHEMICAL CAPASITOR	C258,C253 on MAIN BOARD	2
01900834	RA2-16V101M-T2	CHEMICAL CAPACITOR	C58,C80,C37,C28,C83 on JACK BOARD	5
15369109	ECEV0JA101SP	CHEMICAL CAPACITOR	C358,C375,C360 on MAIN BOARD	3
02014923	RA2-35V470MT2	CHEMICAL CAPACITOR	C56,C3,C9,C13,C18,C40,C31,C23 on JACK BOARD	8
15369152	ECEV1CA100SR	CHEMICAL CAPACITOR	C149,C150,C151,C152,C166,C145,C239,C85,C255,C266,C271,C273,C172,C278,C94,C351,C356,C354,C324,C349,C345,C341,C339,C337,C31,C335,C108,C309,C347,C281,C315,C313,C308,C326,C330,C302,C292,C294,C282,C288,C296,C4,C298 on MAIN BOARD	43
02017067	ECEV0JA471P	CHEMICAL CAPACITOR	C260 on MAIN BOARD	1
01454889	RA2-16V470MT2 470UF/16V	CHEMICAL CAPACITOR	C73 on JACK BOARD	1
02891756	RC2-6V331M-T2	CHEMICAL CAPACITOR	C107,C11,C106,C105,C114,C115,C116 on PANEL SHEET	7
02891767	RC2-16V100M-T2	CHEMICAL CAPACITOR	C16,C81,C83,C85,C153,C5,C173,C171 on PANEL SHEET	8
01674712	ECJ1VF1A105Z	CERAMIC CAPACITOR	C148,C75,C146,C147,C193,C194,C195 on MAIN BOARD	7
01902590	RA2-6V101MC-T2	CHEMICAL CAPACITOR	C99 on JACK BOARD	1
01900823	RA2-16V100M-T2	CHEMICAL CAPACITOR	C51,C49,C46,C44,C36,C10,C19,C53,C90,C27,C61,C63,C64,C66,C68,C81,C88,C102,C55,C85 on JACK BOARD	20
01899223	ECHU1H102JX5	POLYEST. CAPACITOR	C285,C327,C316,C303,C295,C289,C277,C332 on MAIN BOARD	8
15369149M0	ECEV1CA470P	CHEMICAL CAPACITOR	C365,C363 on MAIN BOARD	2

INDUCTOR, COIL, FILTER

01909645	EXCML16A270U	FERRITE-BEAD	L4,L3 on MAIN BOARD	2
01565578	N1608Z601T01	FERRITE-BEAD	L1,L9,L8,L7,L10,L6,L5,L4,L2,L11,L3,L13,L14,L15,L16,L17,L12 on JACK BOARD,L9,L22,L21,L20,L19,L18,L17,L16,L13,L12,L23,L10,L8,L7,L6,L5,L11 on MAIN BOARD,L7,L13,L12,L11,L10,L9,L8,L14,L17,L21,L18,L19,L20,L22,L24,L25,L26,L27,L28,L29,L30,L31,L15,L5,L4,L3,L2,L1,L6,L23 on PANEL SHEET	30
01672889	SBC3-221-681	CHOKE COIL	L16 on PANEL SHEET	1
02783478	SLF10145T-101M1R0	CHOKE COIL	L2 on MAIN BOARD	1

CRYSTAL, RESONATOR

00894034	MA-406 16.000MHZ TE24	CRYSTAL	X2 on MAIN BOARD	1
00894023	MA-406 20.000MHZ TE24	CRYSTAL	X1 on PANEL SHEET	1
01340745	MA-406 12MHZ	CRYSTAL	X4 on MAIN BOARD	1
02673134	MA-406 16.9344MHZ	CRYSTAL	X3 on MAIN BOARD	1
15299170	MC-406 32.768KHZ	CRYSTAL	X1 on MAIN BOARD	1

ENCODER

		03122134	ROTARY ENCODER	EC12E2420802	EN1 on PANEL SHEET	1

CONNECTOR

		13369515	B5B-PH-K-S JST	CONNECTOR	CN16 on MAIN BOARD,CN14 on PANEL SHEET	1
		02454245	28FMN-SMT-TF	CONNECTOR	CN1 on PANEL SHEET	1
		02673145	B2(4-2.3)B-XH-A	CONNECTOR	CN1 on JACK BOARD	1
		02010078	TX25-80P-6ST-E1	CONNECTOR	CN3 on MAIN BOARD	1
	#	02012089	30FMN-BTK	CONNECTOR	CN6 on JACK BOARD	1
		13369592	B7B-XH-A(7P) JST	CONNECTOR	CN10 on MAIN BOARD	1
		13369679	52147-1410	WIRE TRAP	CN11 on PANEL SHEET	1
		13369605	52147-1010(10P)	WIRE TRAP	CN13 on PANEL SHEET	1
	#	13369680	52147-1510	WIRE TRAP	CN7 on JACK BOARD	1
		13369898	B2P3-VH 7A/250V	CONNECTOR	CN9 on PANEL SHEET	1
		13429292	51048-0300 3PIN	CABLE HOLDER	CN4,CN5 on PANEL SHEET	2
		13429299	51048-1000(10P)	CABLE HOLDER	CN12 on PANEL SHEET	1
		13429318	51048-1400 14PIN	CABLE HOLDER	CN10 on PANEL SHEET	1
	#	13429319	51048-1500	CABLE HOLDER	CN6 on PANEL SHEET	1

WIRING, CABLE

		02679390	WIRING	7X150-P2.5-XHP-XHP-F		1
	#	03017956	WIRING W1			1
⚠	#	03120801	WIRING W3			1
		02343945	BAN CARD	BNCD-P=1.00-K-28-100		1
	#	03017934	BAN CARD	BNCD-P=1.00-K-30-100		1
	#	03017945	BAN CARD	BNCD-P=1.00-K-24-260		1

TRANSFORMER

⚠		00900901	CXA-M10AL 560000030	INVERTER MODULE	MOD1 on JACK BOARD	1
		02019478	(7KQ5) 19832A	PULSE TRANS	T1 on JACK BOARD	1

SCREW

		40230590	SCREW M3X10	BINDING MACHINE NI		1
		40011101	SCREW 3X8	BINDING TAPTITE B BZC		6
		40011090	SCREW 3X6	BINDING TAPTITE B BZC		18
		40011056	SCREW 3X6	BINDING TAPTITE B ZC		39
		40011312	SCREW 3X8	BINDING TAPTITE P BZC		10
		40238501	SCREW 4X8	BINDING TAPTITE P BZC		2
		40011490	SCREW M3X6	PAN MACHINE W/SW BZC		9
		40235189	RING	SE-9		1

PACKING

	#	03122390	PAD L			1
	#	03122401	PAD R			1
	#	03122412	ACCESSORY PAD			1
	#	03122389	PACKING CASE			1

MISCELLANEOUS

		40122490	DOUBLE-FACED TAPE	#500 W5MM 20M 40P		146
		02894367	INSULATING COVER	DA-2496 SW-PS		1
	#	03017712	SPACER			1
		02238145	PWB SPACER	WLS-20-0		2
	#	03017867	CARD SPACER	MPS-10-0		1
		01902756	PWB SPACER	RSPS-12L		1
		02019034	PWB SPACER	RSPLS-12L		1
		40017356	COATING CLIP	CS-4		1
		40016512	INSULOK TIE	80M/M T-18S		1
		12359139	RUBBER FOOT	FF-018 BLK		4
		02457812	91145-61103	DIMM SOCKET	CN2 on MAIN BOARD	1
		12199584	M1698	GROUNDING TERMINAL	TER2,TER1 on JACK BOARD ,TER2,TER1,TER3 on PANEL SHEET	3
		03230101	ISOLATOR			1

ACCESSORIES (STANDARD)

⚠		02129278	AC CORD SET	100V 2P 2.5M		1
⚠		02129289	AC CORD SET	120V 2P 2.5M		1
⚠		02894345	AC CORD SET	230V EU 2P 2.0M		1
⚠	#	02894234	AC CORD SET	230VE 2P 2.5M		1
⚠		02129301	AC CORD SET	240V A 2P 2.5M		1
		01346312	CARD PROTECTOR			1
	#	72128389	OWNER'S MANUAL SET	JAPANESE		1
	#	72128501	OWNER'S MANUAL SET	ENGLISH		1

ACCESSORIES (STANDARD)

#	********	CD-ROM	SAMPLING CD	1
	40232334	WARRANTY CARD	MOCHIKOMI JAPAN ONLY	1

CHECKING THE VERSION NUMBER

1. Turn on the power of the MC-909.

2. Hold down the [SHIFT] button, and press the [F5] button.

The System screen will appear, and the LCD display will show the following.

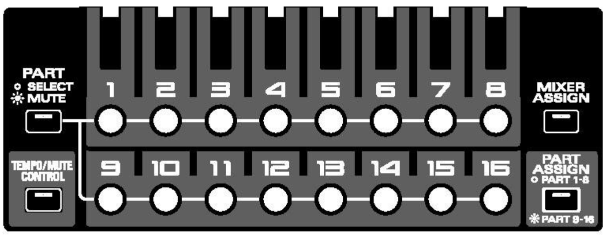


3. Press the [F6] button.

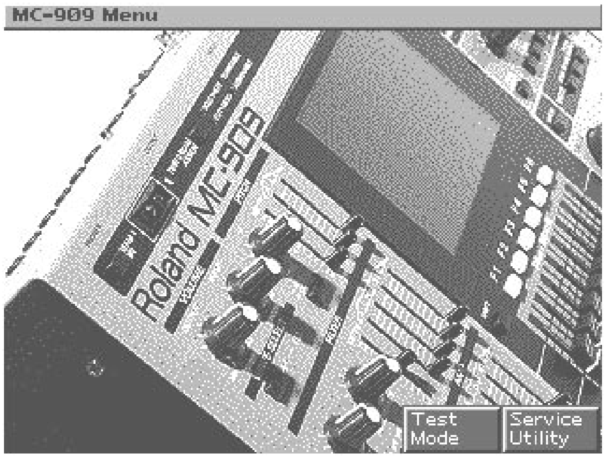
The System Info screen will appear, and the LCD display will show the following.



4. Hold down the [SHIFT] button, and press the part buttons (see figure below) in the order of [1] -> [7] -> [8] -> [9].



The MC-909 Menu screen will appear, and the LCD display will show the following.



5. When you press the [F5] button, the LCD display will show the following, and the program version number will be displayed.



PROG Version: program version number

BOOT Version: boot program version number

Normally you will note the program version number.

When you have noted the version number, turn off the power of the MC-909.

USERS DATA SAVE AND LOAD

Here's how to initialize a memory card.

NOTE

When you execute the Format operation, the contents of the memory card will be completely erased.

1. Insert a memory card into the slot.

2. Press [MENU].

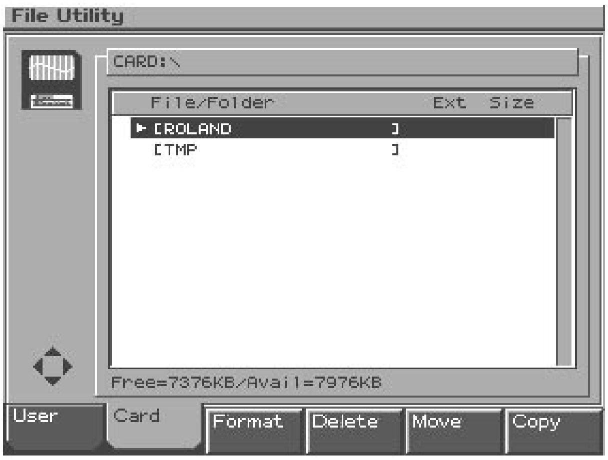
3. Use [CURSOR (up/down)] to select "File Utility."



4. Press [ENTER].

The File Utility screen will appear.

Press [F2 (Card)].



5. Press [F3 (Format)].

A message will ask you for confirmation.

6. To format the card, press [F6 (Execute)].

* *To cancel, press [F5 (Cancel)].*

User Backup

Here's how all user data in the user area can be saved on a memory card.

The following user data will be saved.

- User Patterns
- User Patches
- User Rhythm sets
- Songs
- Samples
- Pattern sets
- RPS sets
- Arpeggio styles
- Chord forms
- System settings

MEMO

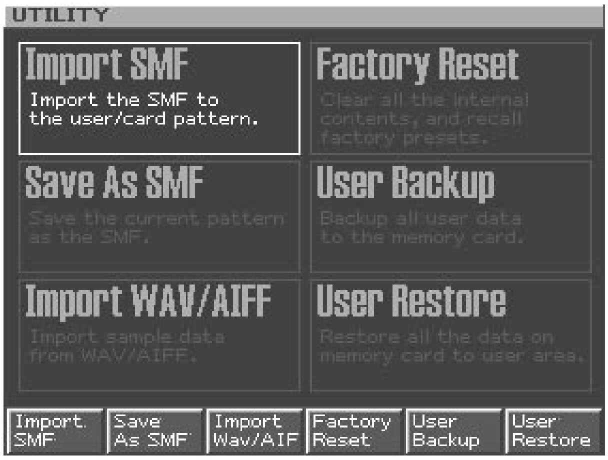
In order to execute User Backup, the memory card must have approximately 64 MB or more free area.

1. Insert a memory card into the slot.
2. Press [MENU].
3. Use [CURSOR (up/down)] to select "Utility."



4. Press [ENTER].

The Utility menu screen will appear.



5. In the Utility screen, press [F5 (User Backup)].

A message will ask you for confirmation.

6. To execute the backup, press [F6 (Execute)].

* *To cancel, press [F5 (Cancel)].*

User Restore

Here's how user data saved on a memory card by the User Backup operation can be reloaded back into the user memory of the MC-909.

NOTE

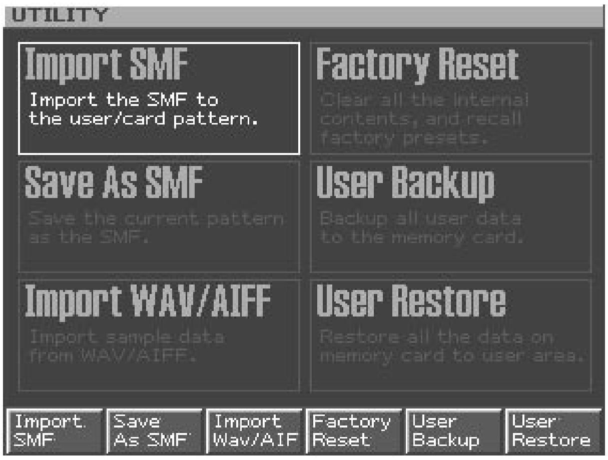
When you execute User Restore, the current contents of the user area will be completely erased.

1. Into the slot, insert the memory card on which user data has been saved.
2. Press [MENU].
3. Use [CURSOR (up/down)] to select "Utility."



4. Press [ENTER].

The Utility menu screen will appear.



5. In the Utility screen, press [F6 (User Restore)].

A message will ask you for confirmation.

6. To proceed with the restoration, press [F6 (Execute)].

* *To cancel, press [F5 (Cancel)].*

RESTORING THE FACTORY SETTINGS

Here's how to restore the settings of the MC-909 to their factory-set state.

NOTE

When you execute Factory Preset, the data of the internal user memory will be lost. If the internal memory of the MC-909 contains data that you want to keep, you must save it on SmartMedia or via USB to your computer.

NOTE

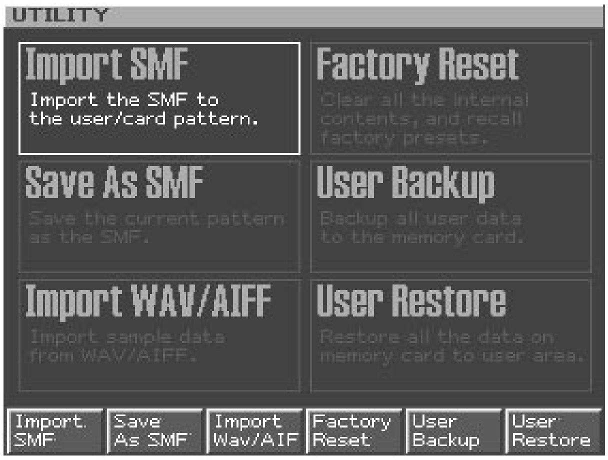
Never turn off the power while Factory Reset is being executed. Doing so may destroy the contents of memory.

1. Press [MENU].

2. Use [CURSOR] to select "Utility."

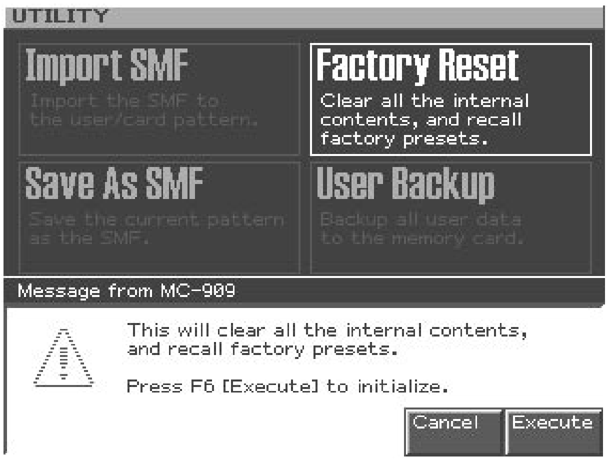


3. Press [ENTER] to access the Utility menu.



4. Press [F4 (Factory Reset)].

A warning message will appear.



5. To execute a Factory Reset, press [F6 (Execute)].

The Factory Reset will be carried out.

* *If you decide not to proceed with the reset, press [F5 (Cancel)].*

When the screen indicates "Please Power Off," turn the power off, then on again.

SYSTEM SOFTWARE UPDATE PROCEDURE

Flash memory is used for the program ROM of the MC-909, and can be updated in either of the following two ways.

1. Updating the MC-909 via its SmartMedia slot (recommendation) (time required: approximately 3 minutes)

2. Updating the MC-909 via USB cable from your computer (time required: approximately 3 minutes)

NOTE

When you execute update, the data of the internal user memory will be lost. If the internal memory of the MC-909 contains data that you want to keep, you must save it on SmartMedia or via USB to your computer.

1. Updating the MC-909 via its SmartMedia slot

Required equipment

1. UPDATE DATA FOR SERVICE CD-ROM (#17041222)
2. Computer (OS must be Windows Me, Windows 2000, or Windows XP)
   * *Must not use the Macintosh OS.*
3. Two SmartMedia cards (one 32MB or larger, one with 64MB or more free space (for USER DATA BACK UP))
4. SmartMedia reader/writer
   * *After updating, you must set the destination region and perform the factory reset. If user memory contains important data, save the data (refer to "Saving and loading user data") before you perform the update.*

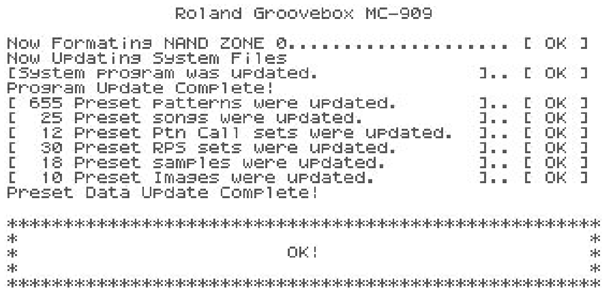
procedural steps

Create an update card.

1. Power-on your computer.
2. Insert a 32 MB or larger SmartMedia card into the SmartMedia reader/writer connected to your computer, and format it.
3. Insert the UPDATE CD-ROM (#17041222) into your computer, and browse to the "CARD" folder within the CD-ROM.
4. Copy the entire "Roland" folder (located within "CARD") onto the SmartMedia.

Update procedure

1. Insert the update card you created into the MC-909.
2. Inserting the card into the MC-909 will automatically execute the update.
3. When the LCD display shows the following, the update is complete.



4. The update procedure is completed. Turn off the power, and remove the update card from the MC-909.
5. Power-on the MC-909, and execute Test mode.

2. Updating the MC-909 via USB cable from your computer

Required equipment

1. UPDATE DATA FOR SERVICE CD-ROM (#17041222)
2. Computer (with USB connector; OS must be Windows Me, Windows 2000, or Windows XP)
   * *Must not use the Macintosh OS.*
3. One SmartMedia card (64MB or more free space (for USER DATA BACK UP))
4. USB cable
   * *After updating, you must set the destination region and perform the factory reset. If user memory contains important data, save the data (refer to "Saving and loading user data") before you perform the update.*

procedural steps

1. Power-on the MC-909.
2. Hold down the [SHIFT] button, and press the [F5] button.

The System screen will appear, and the LCD display will show the following.

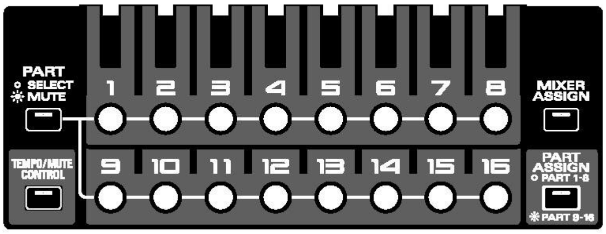


3. Press the [F6] button.

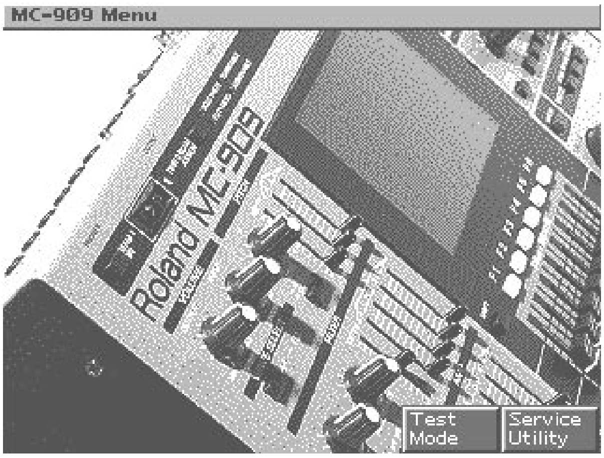
The System Info screen will appear, and the LCD display will show the following.



4. Hold down the [SHIFT] button, and press the part buttons (see figure below) in the order of [1] -> [7] -> [8] -> [9].



The MC-909 Menu screen will appear, and the LCD display will show the following.



5. Press the [F6] button. The [Service Utility] screen will appear, and the LCD display will show the following.

```
          1         2         3         4         5
012345678901234567890123456789012345678901234567890123456789012
[Service Utility]

     [Program Version]

         Boot PGM Version     1.00
                  Build #:    015
                  Build Date:2002/07/11 13:32

         Appi PGM Version:    1.03
                  Build #:    0106
                  Build Date:2002/11/01 16:46

     [Heap Memory information]

         Free / Total = 0 / 0 bytes



                                              [Update Mode]
                                            Voltage  Program
```

6. Press the [F6] button. The [Program Update Mode (USB)] screen will appear, and the LCD display will show the following.

```
          1         2         3         4         5
012345678901234567890123456789012345678901234567890123456789012
              [Program Update Mode (USB)]

Are you sure? [Yes(ENTER)/No(EXIT)]
```

7. Press the [ENTER] button. The LCD display will show "Initializing....," and then the following.

* *If you want to cancel the update procedure, press the [EXIT] button before you press the [ENTER] button. (The procedure cannot be cancelled after this step.)*

```
          1         2         3         4         5
012345678901234567890123456789012345678901234567890123456789012
              [Program Update Mode (USB)]


[USB STATUS]  Disconnected.
```

At this time, "[USB STATUS]" indicates the state of the USB connection.

[USB STATUS] Disconnected.	The computer is not connected.
[USB STATUS] Connected.	The computer is connected.
[USB STATUS] Receiving.	Data is being received from the computer.

8. Power-on your computer.
9. Use a USB cable to connect your computer and the MC-909. (The MC-909 will appear on your computer as a removable disk drive.)
   Make sure that the LCD display of the MC-909 indicates "[USB STATUS] connected.."
10. Insert the UPDATE CD-ROM (#17041222) into your computer, and navigate to the "USB" folder within the CD-ROM.
11. Copy the entire "Roland" folder (located within "USB") to the MC-909 (removable disk).
    The MC-909 will receive the data from the computer.
    Make sure that the MC-909's LCD display shows "[USB STATUS] Receiving.."
12. When the MC-909's LCD display changes to "[USB STATUS] Connected.," copying has been completed.
13. On your computer, use the device eject button displayed in the taskbar at the lower right of the screen to defeat the connection with the MC-909.
14. Disconnect the USB cable. This completes the update procedure.
15. Power-on the MC-909 once again, and execute Test mode.

Cautions when updating via USB

- Do not power-off the MC-909 after performing step 7. If the power is turned off, the program will be lost. If this occurs, the only possible action will be to update via SmartMedia.
- You must restart your computer before you begin the update procedure.

TEST MODE

Required equipment

1. Monitor speaker
2. MIDI cable
3. Audio cable
4. Optical (angular type) cable
5. Coaxial (pin) cable
6. USB cable
7. SmartMedia (formatted; with protect label affixed)
8. SmartMedia (formatted; without protect label)
9. DIMM (for DIMM specifications, refer to Main Specifications)
10. Wave expansion board: SRX series
11. Computer (with USB connector; OS must be Windows Me, Windows 2000, or Windows XP)

Starting up Test mode

1. Power-on the MC-909.
2. Hold down the [SHIFT] button and press the [F5] button.

The System screen will appear, and the LCD display will show the following.

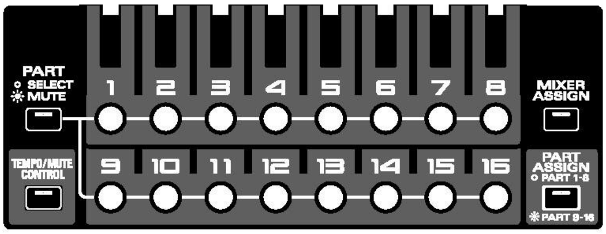


3. Press the [F6] button.

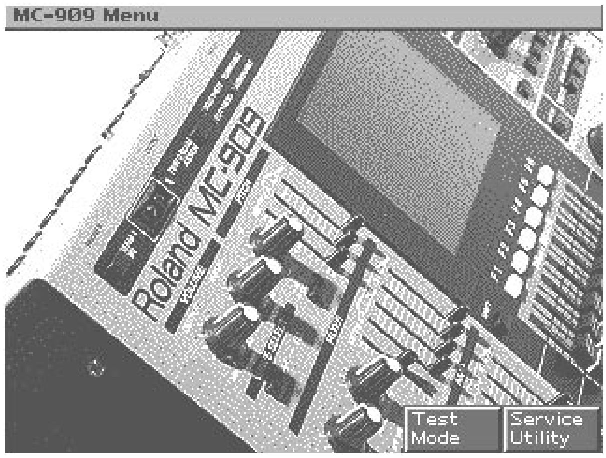
The System Info screen will appear, and the LCD display will show the following.



4. Hold down the [SHIFT] button and press the part buttons (see figure below) in the order of [1] -> [7] -> [8] -> [9].



The MC-909 Menu screen will appear, and the LCD display will show the following.



5. Press the [F5] button, and the LCD display will show the following. Test mode will start up.

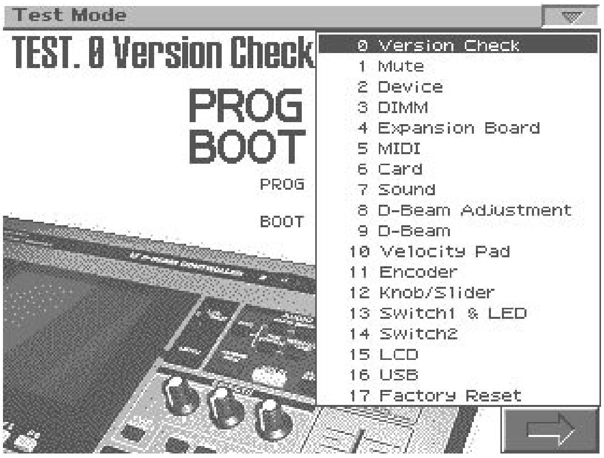


Basic operation in Test mode

Basic operation of the controls is as follows.

[F6]	To the next test screen
[F1]	To the previous test screen
[SHIFT]+[F6]	Forcibly move to the next test screen
[SHIFT]+[F1]	Forcibly move to the previous test screen
[MENU] or [SHIFT]+[MENU]	Select test items

When you enter the test item selection screen, the LCD display will show as follows.



Use the [VALUE] dial, [INC][DEC] buttons, or [CURSOR] up/down buttons to select a test item, and press the [ENTER] button.

Test items

Test the 18 items listed below.
0. Version Check
1.Mute
2.Device
3.DIMM
4.Expansion Board
5.MIDI
6.Card
7.Sound
8.D-Beam Adjustment
9.D-Beam
10.Velocity Pad
11.Encoder
12.Knob/Slider
13.Switch1 & LED
14.Switch2
15.LCD
16.USB
17.Factory Reset

Using Test mode

Before you enter Test mode, make sure that the power is not turned on, remove the EXP COVER from the bottom panel of the MC-909, and insert the DIMM and expansion board you provided.

0. Version check

When you enter test mode, you will begin with the version check item.

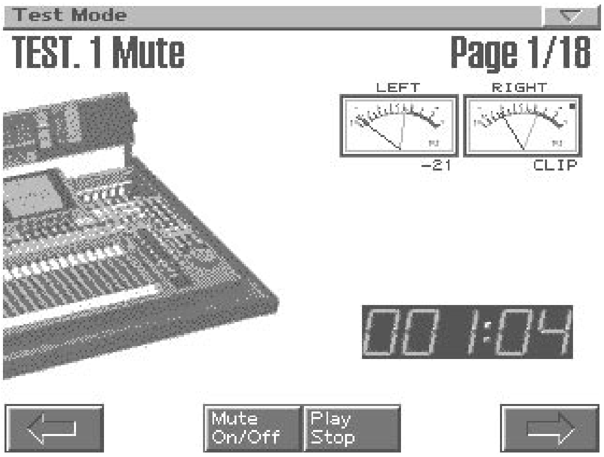


The LCD display and the 7-segment display will show the version number of the program.
Press the [F6] button to proceed to the next test item.

* *Make sure that the program version number is 1.03 or later. If it is 1.02 or earlier, read the system update procedure and update the unit to version 1.03 or later.*

1. Mute test

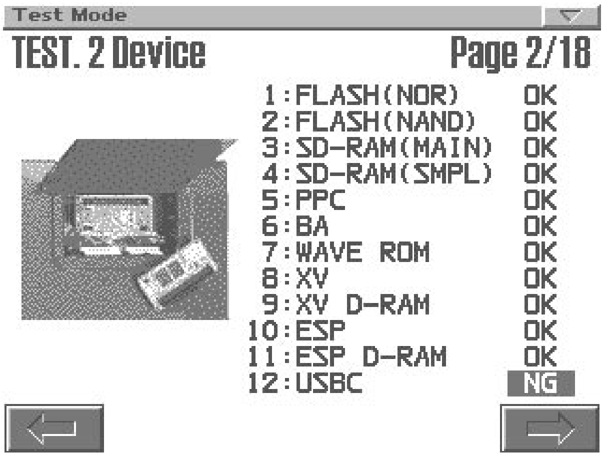
This will test the mute circuit on the jack board.
The LCD display will show as follows, and an internal pattern of the MC-909 will begin playing.



Verify that an audio signal is output from the [PHONES] jack and [MIX OUTPUT L/R] jacks.
Then press the [F3] button and verify that the audio signal is muted.
Press the [F6] button to proceed to the next test item.

2. Device test

This will test the various devices on the main board.
When you enter the device test, the LCD display will show as follows, and the device test will begin automatically.



Devices corresponding to the LCD display indications

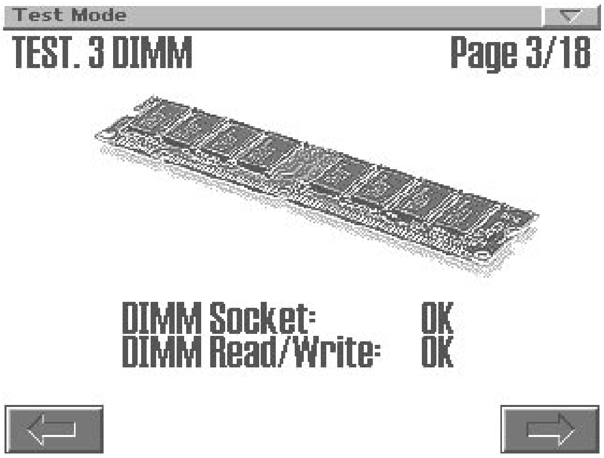
LCD display	Corresponding main board device
1:FLASH (NOR)	IC19
2:FLASH (NAND)	IC53
3:SD-RAM (MAIN)	IC2,6
4:SD-RAM (SMPL)	IC20,24
5:PPC	IC4
6:BA	IC21
7:WAVE ROM	IC28
8:XV	IC27
9:XV D-RAM	IC37
10:ESP	IC22
11:ESP D-RAM	IC23
12:USBC	IC56

If all the test result is OK for all devices, you will automatically proceed to the next test item.

3. DIMM test

This tests the DIMM socket and peripheral circuits.

When you enter the DIMM test, the LCD display will show as follows, and the DIMM test will begin automatically.

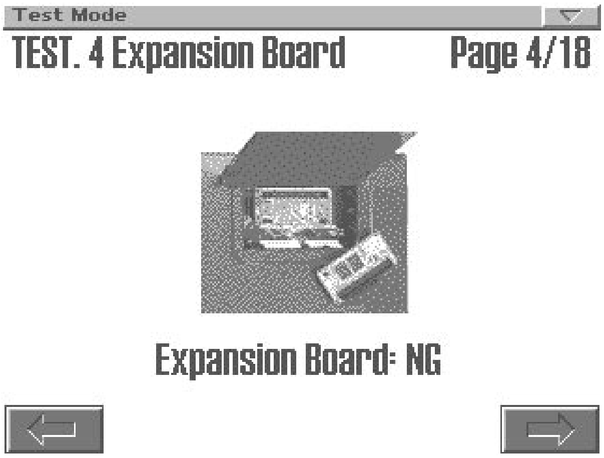


If the test result is OK, you will automatically proceed to the next test item.

4. Expansion board test

This tests the expansion board socket and peripheral circuits.

When you enter the expansion board test, the LCD display will show as follows, and the expansion board test will begin automatically.



If the test result is OK, you will automatically proceed to the next test item.

5. MIDI test

This tests MIDI communication.

When you enter the MIDI test without connecting MIDI IN and MIDI OUT by a MIDI cable, the LCD display will show as follows.



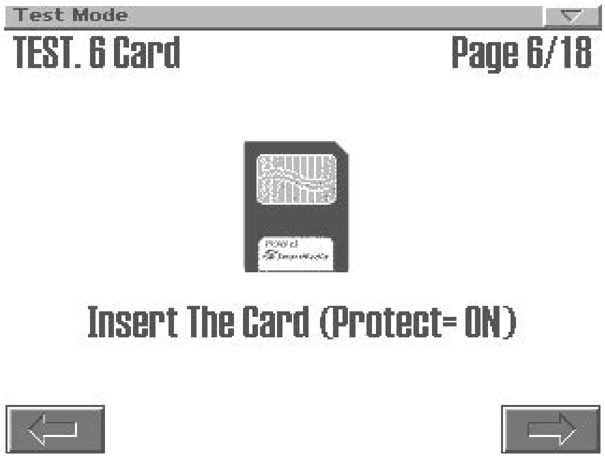
Use a MIDI cable to connect MIDI IN and MIDI OUT.

If the test result is OK, you will automatically proceed to the next test item.

6. Card test

This tests the SmartMedia connector and peripheral circuits.

When you enter the card test, the LCD display will show as follows.



Insert the SmartMedia card you provided (formatted; with protect label affixed) into the SmartMedia card slot.

If the test result is OK, the display will change to "Protect=OK Please,Remove The Card."

When you remove the inserted SmartMedia, the display will change to "Insert The Card (Protect=OFF)."

Next insert a SmartMedia card (formatted; without protect label) into the SmartMedia card slot.

If the test result is OK, the display will change to "Read/Write=OK Please,Remove The Card."

When you remove the inserted SmartMedia, you will automatically proceed to the next test item.

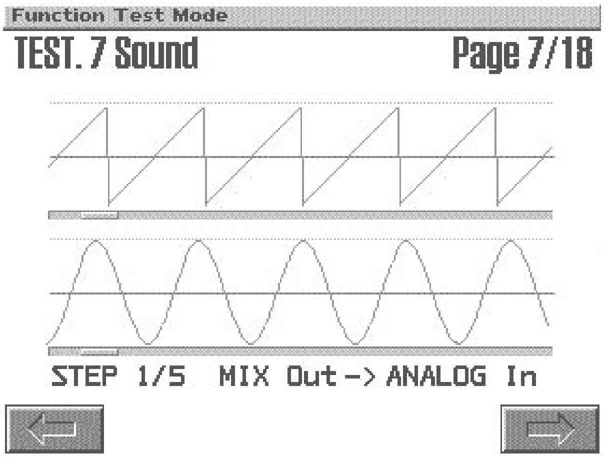
7. Sound test

This tests the audio input/output circuits.

First test the circuitry of the [MIX OUTPUT L/R] jacks and [INPUT L/R] jacks.

Use audio cables to connect the [MIX OUTPUT L(MONO)] jack to the [INPUT L] jack, and the [MIX OUTPUT R] jack to the [INPUT R] jack. Then turn the [VOLUME OUTPUT] knob and [VOLUME INPUT] knob all the way to the right (MAX).

Verify that the LCD display shows a sawtooth wave above and a sine wave below, as follows.



Press the [F6] button to proceed to the [DIRECT OUTPUT 1 L/R] jack circuit test.

Use audio cables to connect the [DIRECT OUTPUT 1 L] jack to the [INPUT L] jack, and the [DIRECT OUTPUT 1 R] jack to the [INPUT R] jack. Then turn the [VOLUME INPUT] knob all the way to the right (MAX).

Verify that the LCD display shows a sawtooth wave above and a sine wave below.

Press the [F6] button to proceed to the [DIRECT OUTPUT 2 L/R] jack circuit test.

Use audio cables to connect the [DIRECT OUTPUT 2 L] jack to the [INPUT L] jack, and the [DIRECT OUTPUT 2 R] jack to the [INPUT R] jack. Then turn the [VOLUME INPUT] knob all the way to the right (MAX).

Verify that the LCD display shows a sawtooth wave above and a sine wave below.

Press the [F6] button to proceed to the [DIGITAL AUDIO INTERFACE OPTICAL] jack circuit test.

Use an optical (angular plug) cable to connect the [DIGITAL AUDIO INTERFACE OPTICAL OUT] jack to the [DIGITAL AUDIO INTERFACE OPTICAL IN] jack.

Verify that the LCD display shows a sawtooth wave above and a sine wave below.

Press the [F6] button to proceed to the [DIGITAL AUDIO INTERFACE COAXIAL] jack circuit test.

Use a coaxial (pin plug) cable to connect the [DIGITAL AUDIO INTERFACE COAXIAL OUT] jack to the [DIGITAL AUDIO INTERFACE COAXIAL IN] jack.

Verify that the LCD display shows a sawtooth wave above and a sine wave below.

Press the [F6] button to proceed to the next test item.

8. D-Beam Adjustment test

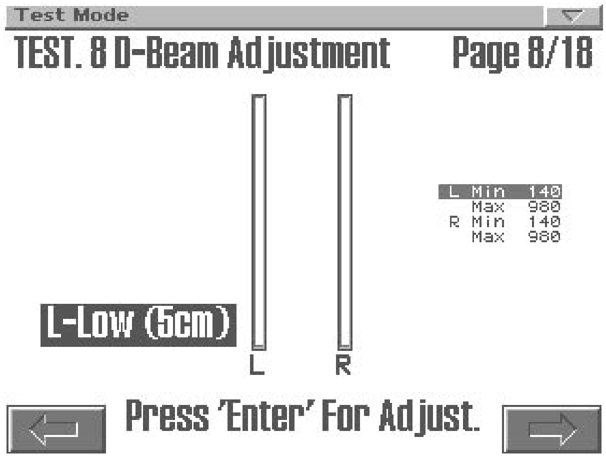
This adjusts the sensitivity of the [TWIN D BEAM] controllers.

This adjustment will optimize the sensitivity of the controller at two distances (5 cm, 45 cm) from the [TWIN D BEAM] controller to the user's hand. Here you will also correct any differences in the sensitivity of [D BEAM 1] and [D BEAM 2].

Before the test: In order to perform the D-Beam Adjustment test and the D-Beam test, the surroundings of the MC-909 must meet the following conditions.

- Do not place any objects near the MC-909. (Keep them at least 30 cm away.)
- Place the MC-909 at a distance (at least 100 cm) from large flat surfaces such as the walls or ceiling.
- Do not place the MC-909 where strong light (such as direct sunlight or electric light) falls on it.

When you enter the D-Beam Adjustment test, the LCD display will show the following.



First you will make the "5 cm" setting for the [D BEAM 1] controller.

The LCD display will show "L-Low (5cm)."

Place your hand parallel with the panel surface at a vertical distance of 5 cm from the [D BEAM 1] controller, and press the [ENTER] button.

Do not move your hand as long as the lower part of the LCD display indicates "Now Adjusting...."

When the setting is completed, you will automatically proceed to the next setting.

Make the "5 cm" setting for the [D BEAM 2] controller.

The LCD display will show "R-Low (5cm)."

Place your hand parallel with the panel surface at a vertical distance of 5 cm from the [D BEAM 2] controller, and press the [ENTER] button.

Do not move your hand as long as the lower part of the LCD display indicates "Now Adjusting...."

When the setting is completed, you will automatically proceed to the next setting.

Make the "45 cm" setting for the [D BEAM 1] controller.

The LCD display will show "L-High (45cm)."

Place your hand parallel with the panel surface at a vertical distance of 45 cm from the [D BEAM 1] controller, and press the [ENTER] button.

Do not move your hand as long as the lower part of the LCD display indicates "Now Adjusting...."

When the setting is completed, you will automatically proceed to the next setting.

Make the "45 cm" setting for the [D BEAM 2] controller.

The LCD display will show "R-High (45cm)."

Place your hand parallel with the panel surface at a vertical distance of 45 cm from the [D BEAM 2] controller, and press the [ENTER] button.

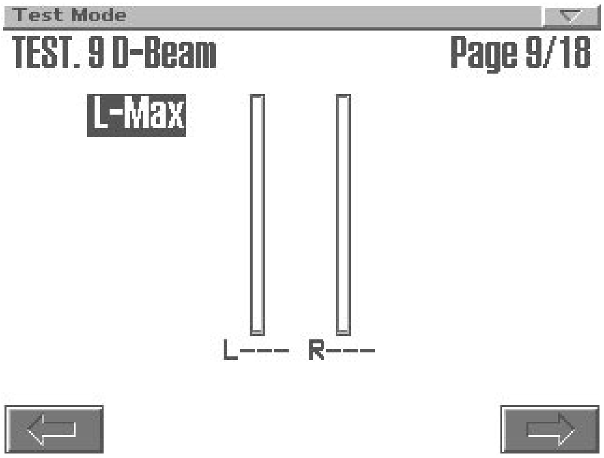
Do not move your hand as long as the lower part of the LCD display indicates "Now Adjusting...."

When the setting is completed, you will automatically proceed to the next test item.

9. D-Beam test

This tests the operation of the [TWIN D BEAM] controllers.

When you enter the D-Beam test, the LCD display will show as follows.



First you will test the [D BEAM 1] controller.

The LCD display will show “L-Max.”

Place your hand above the [D BEAM 1] controller, and move that hand downward.

Verify that the maximum value (L 127) appears in the LCD display when your hand is 5 cm away from the panel surface.

If the test result is OK, the LCD display will show “L-Min.”

Place your hand above the [D BEAM 1] controller and move that hand downward.

Verify that the maximum value (L 0) appears in the LCD display when your hand is 45 cm away from the panel surface.

If the test result is OK, the LCD display will show “R-Max,” and the [D BEAM 2] controller test will begin.

Place your hand above the [D BEAM 2] controller, and move that hand downward.

Verify that the maximum value (R 127) appears in the LCD display when your hand is 5 cm away from the panel surface.

If the test result is OK, the LCD display will show “R-Min.”

Place your hand above the [D BEAM 2] controller, and move that hand downward.

Verify that the maximum value (R 0) appears in the LCD display when your hand is 45 cm away from the panel surface.

If the test result is OK, you will automatically proceed to the next test item.

NOTE

[TWIN D BEAM] controller values are checked while the following tests (Velocity Pad test, Encoder test) are being performed.

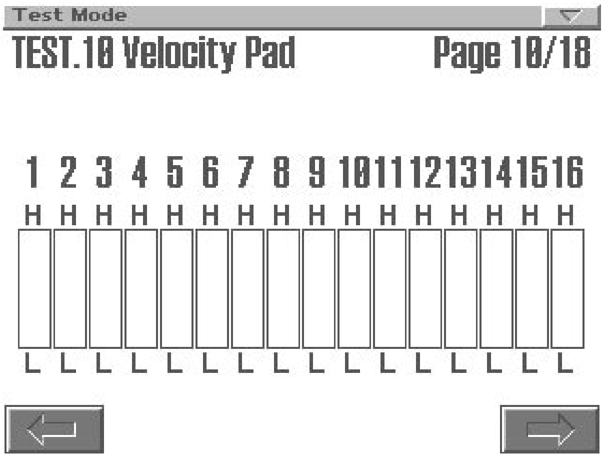
If a value appears even though you are not touching the [TWIN D BEAM] controllers, the test program will determine that an error has occurred, and will display a message of “D-BEAM Error!” and automatically return to the D-BEAM Adjustment test screen.

Do not place your hand above the D-BEAM controllers while performing the Velocity Pad test or Encoder test.

10. Velocity Pad test

This tests the operation of the [VELOCITY PADS].

When you enter the Velocity Pad test, the LCD display will show as follows.



Lightly press [VELOCITY PADS] buttons [1] through [16].

Verify that in the LCD display, the “L” indication dims for the corresponding button.

Strongly press [VELOCITY PADS] buttons [1] through [16].

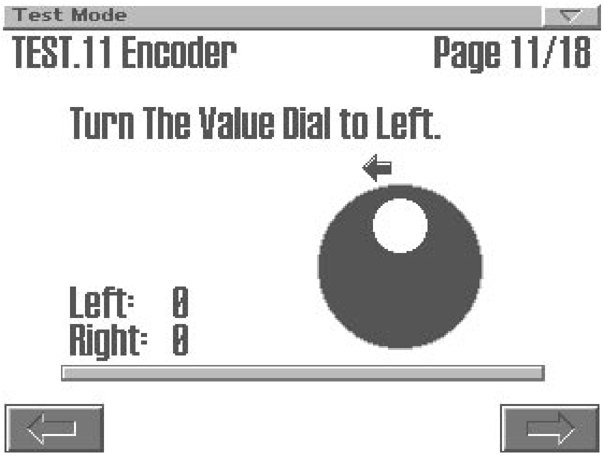
Verify that in the LCD display, the “H” indication dims for the corresponding button, and that the button LED goes dark.

If the test result is OK, you will automatically proceed to the next test item.

11. Encoder test

This tests the operation of the [VALUE] dial.

When you enter the Encoder test, the LCD display will show as follows.



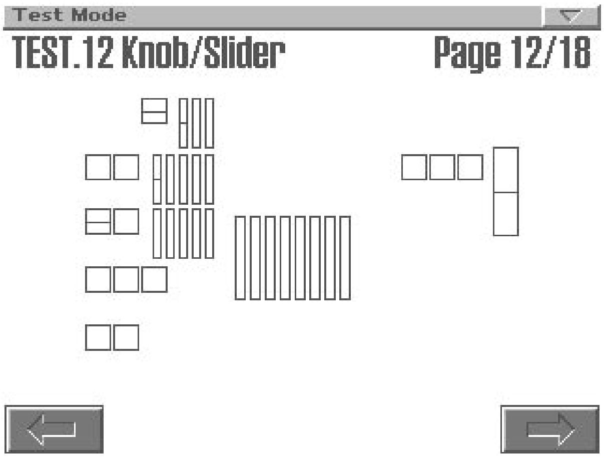
Continue turning the [VALUE] dial toward the left, and verify that the LCD display shows “Left: 72 OK.”

Next, continue turning the [VALUE] dial toward the right. The LCD display will show “Right: 72 OK,” and you will automatically proceed to the next test item.

12. Knob/Slider test

This tests the operation of the MC-909’s knobs and sliders.

When you enter the Knob/Slider test, the LCD display will show as follows.



One at a time, operate all controls (except for the [VOLUME OUTPUT] knob and the [VOLUME INPUT] knob) from the MAX through MIN range.

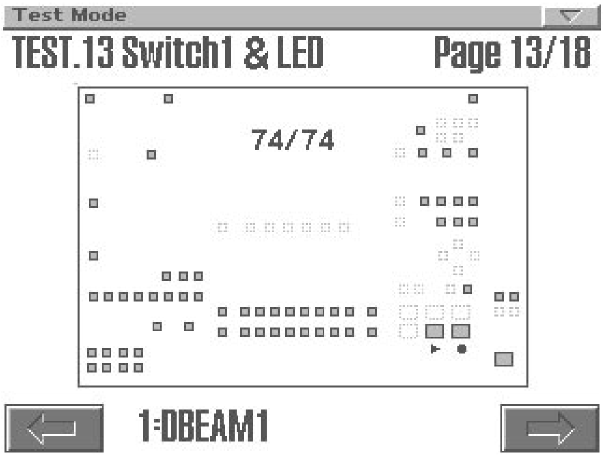
Verify that the indication of the corresponding knob becomes dim in the LCD display.

When the indication of all knobs has become dim and the test result is OK, you will automatically proceed to the next test item.

13. Switch1 & LED test

This tests the operation of the MC-909's LEDs and switches.

When you enter the Switch1 & LED test, the LCD display will show as follows.



One of the panel switches with an LED will light.

When you press that switch, the next switch with LED will light.

Repeat this until all of the switches produce a result of OK, and you will automatically proceed to the next test.

NOTE

It is not valid to press two or more switches simultaneously.

Switches with an LED window will produce the OK result when you press them once. However, a switch with an LED window that is adjacent to directly exposed LEDs will produce the OK result when pressed the same number of times as the number of directly exposed LEDs.

For the [V-LINK] button, verify that the LED color is blue and that the key top color is white. (Shown in the LCD display.)

For the [SAMPLING/RESAMPLING] button, verify that the key top color is red. (Shown in the LCD display.)

For the [MIX IN] button, verify that the key top color is white. (Shown in the LCD display.)

For the [ENTER] button, verify that the LED color is blue. (Shown in the LCD display.)

The [TAP] button also includes the 7-segment LED test. Verify that when you press the [TAP] button, the 7-segment LED lights successively from the left digit. Press the button four times to obtain the OK result.

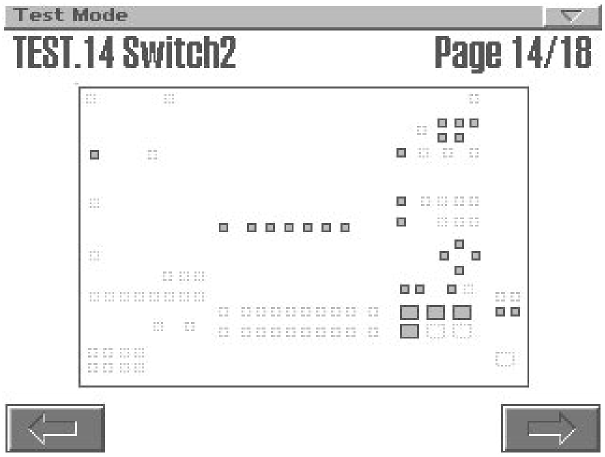
The [PLAY] button has a dual-color LED. Verify that the LED color alternates between red and green.

14. Switch2 test

This tests the operation of the MC-909's switches.

This will test the switches that were not tested by the Switch1 & LED test.

When you enter the Switch2 test, the LCD display will show as follows.



One at a time, press the switches that are shown in the LCD display.

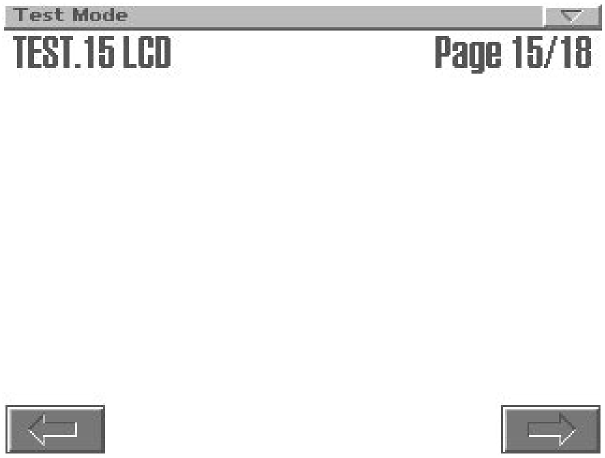
Verify that in the LCD display, the indication of the corresponding switch becomes dim.

When the indications of all switches has become dim and the test result is OK, you will automatically proceed to the next test item.

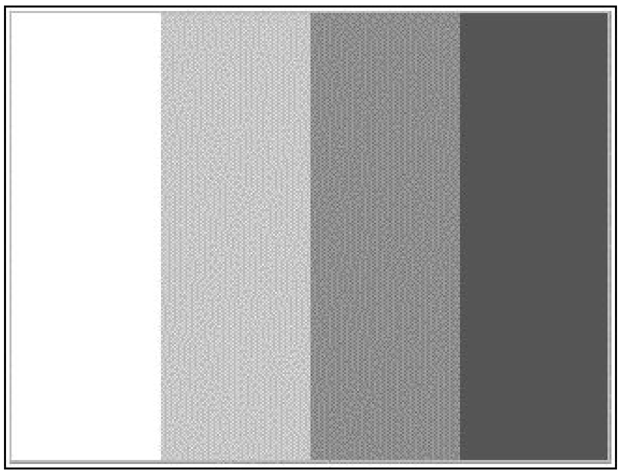
15. LCD test

This tests the operation of the LCD display.

When you enter the LCD test, the LCD display will show as follows.



Press the [F6] button to proceed to the four-level test. The LCD display will show as follows.



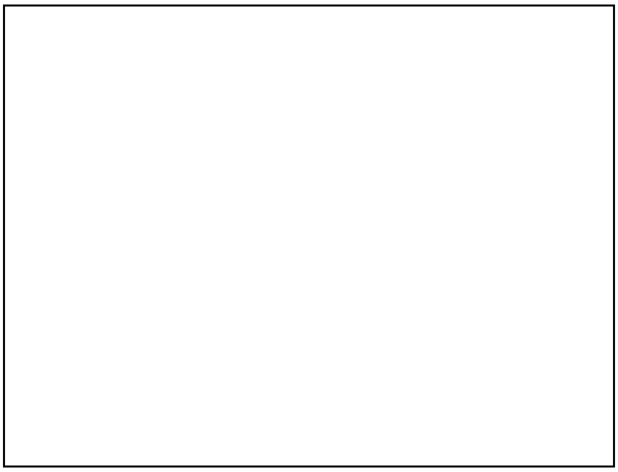
Turn the [LCD CONTRAST] knob, verify that four levels are displayed, and adjust the contrast to the optimal setting.

Press the [F6] button to proceed to the all-pixel-on test. The LCD display will show as follows.



Verify that there are no missing pixels or inconsistency in darkness.

Press the [F6] button to proceed to the all-pixel-off test. The LCD display will show as follows.



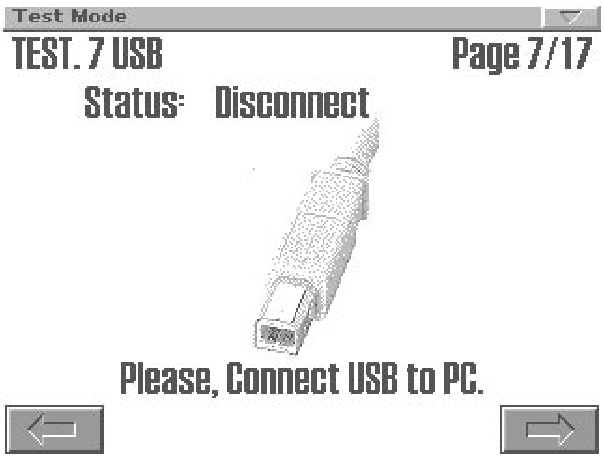
Verify that there is no obtrusive dirt or dust.

Press the [F6] button to proceed to the next test item.

16. USB test

This tests USB operation.

When you enter the USB test, the LCD display will show as follows.



Connect the USB cable to a computer (with USB connector; OS must be Windows Me, Windows 2000, or Windows XP).

If the test result is OK, the display will indicate “Status: Connect USB Test Completed!”

On your computer, use the Eject Device button shown in the taskbar in the lower right of the screen to cancel the connection with the MC-909.

Press the [F6] button to proceed to the next test item.

17. Factory Reset

The settings of the MC-909 differ depending on the destination region. There are three possible settings, as follows.

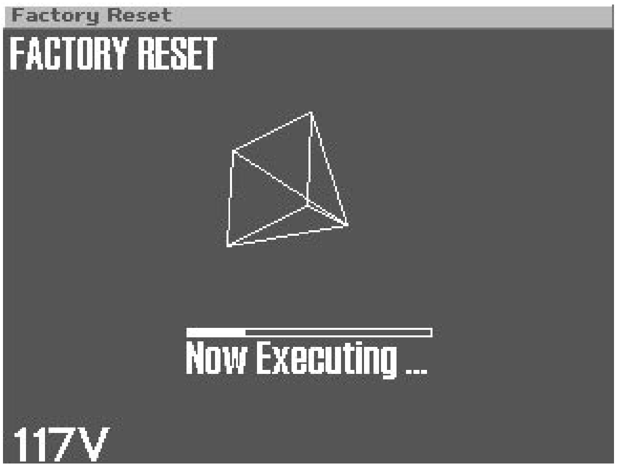
The order of the preset patterns will differ according to the destination region.

"100V": P001 R&B 1, P002 Euro Trance 1, P003 Garage 1, P004 Minimal 1, P005 G-Funk 1

"117V": P001 R&B 1, P002 Euro Trance 1, P003 Garage 1, P004 Minimal 1, P005 G-Funk 1

"230V,240V": P001 R&B 1, P002 Euro Trance 1, P003 Garage 1, P004 Minimal 1, P005 G-Funk 1

If the destination region is already set, the LCD display will show as follows, and factory reset will be executed automatically.

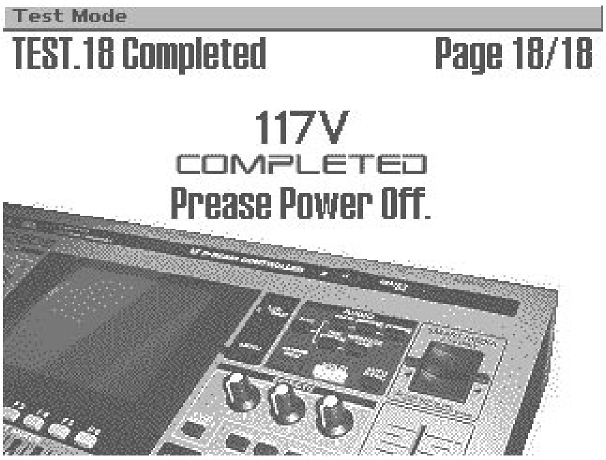


Verify that the lower left of the LCD display shows as follows.

Voltage area	display
117V U or 117V U/CS:	117V
230V EU,230V E or 240V A:	230/240V

If the display shows other than your voltage area, refer to the procedure for changing the destination region, and change it to "100V."

When factory reset is completed, the LCD display will show as follows, and you will exit Test mode.



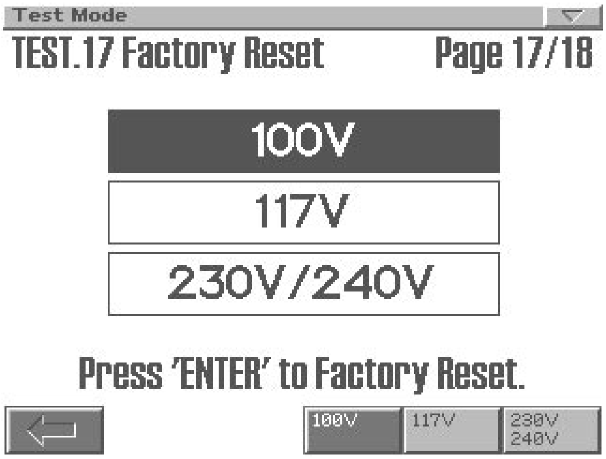
Voltage area :117V U or 117V U/CS



Voltage area :230V EU,230V E or 240V A

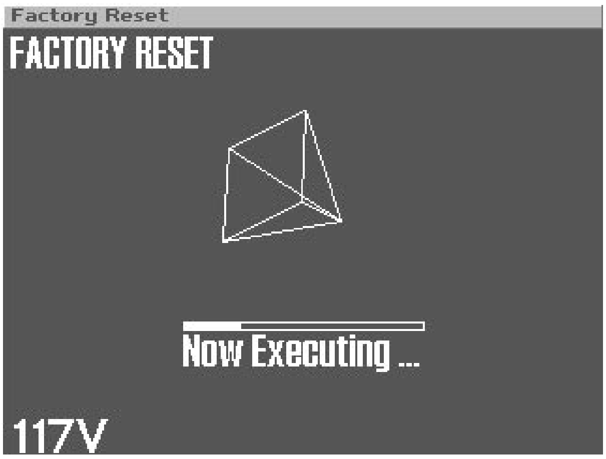
Turn off the power of the MC-909.

If the destination region has not been set, the LCD display will show as follows, and the destination region select screen will appear.

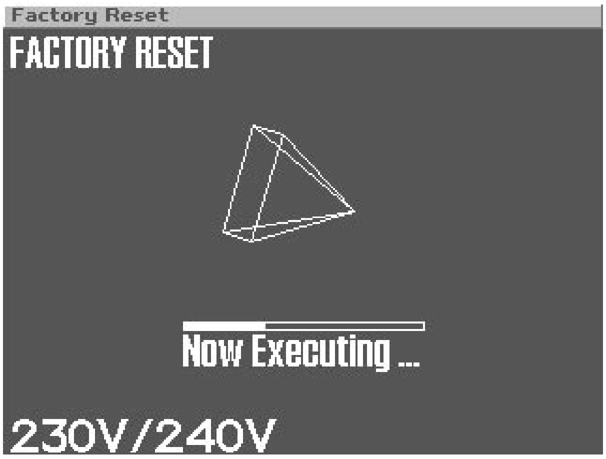


Use the [CURSOR] up/down buttons to select "100V" and press the [ENTER] button.

The LCD display will show as follows, and factory reset will be executed automatically.



Voltage area :117V U or 117V U/CS

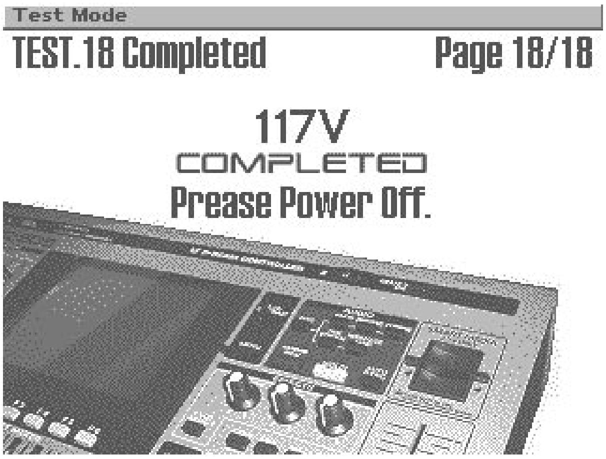


Voltage area :230V EU,230V E or 240V A

Verify that the lower left of the LCD display shows as follows

Voltage area	display
117V U or 117V U/CS:	117V
230V EU,230V E or 240V A:	230/240V

When factory reset is completed, the LCD display will show as follows, and you will exit Test mode.



Voltage area :117V U or 117V U/CS



Voltage area :230V EU,230V E or 240V A

Turn off the power of the MC-909.

Changing the destination region

The settings of the MC-909 differ according to the destination region. There are three possible settings.

The order of the preset patterns will differ according to the destination region.

1. Turn on the power of the MC-909.

2. Hold down the [SHIFT] button and press the [F5] button.

The System screen will appear, and the LCD display will show as follows.

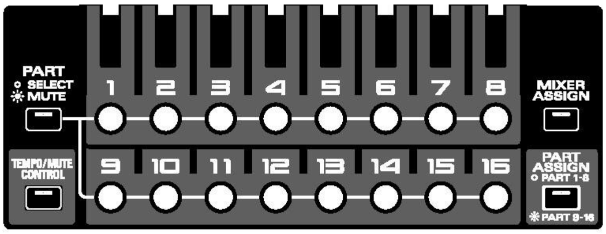


3. Press the [F6] button.

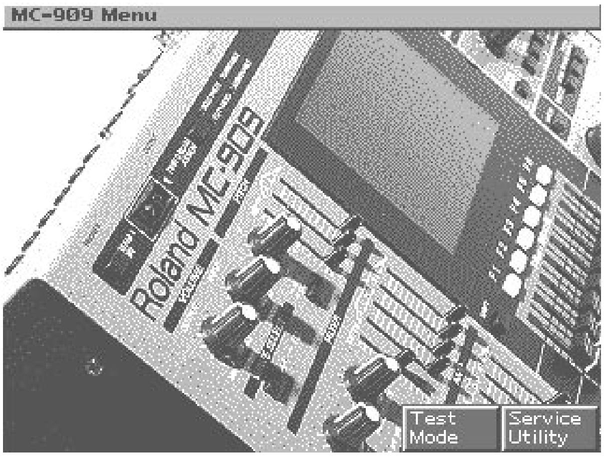
The System Info screen will appear, and the LCD display will show as follows.



4. Hold down the [SHIFT] button and press the part buttons (see figure below) in the order of [1] -> [7] -> [8] -> [9].



The MC-909 Menu screen will appear, and the LCD display will show as follows.



5. Press the [F6] button, and the [Service Utility] screen will appear. The LCD display will show the following.

```
         1         2         3         4         5
012345678901234567890123456789012345678901234567890123
[Service Utility]

     [Program Version]

         Boot PGM Version    1.00
                  Build #:   015
                  Build Date:2002/07/11 13:32

         Apri PGM Version:   1.03
                  Build #:   0106
                  Build Date:2002/11/01 16:46


     [Heap Memory information]

         Free / Total = 0 / 0 bytes



                                [Update Mode]
                               Voltage  Program
```

6. Press the [F5] button and the [Voltage Update Mode] screen will appear. The LCD display will show the following.

```
         1         2         3         4         5
012345678901234567890123456789012345678901234567890123

            [Voltage Update Mode]

 100V     117V     230/240V
```

7. Specify the destination region.

If you press the [F1] button, the LCD display will show "100V (JAPAN) [OK]," and the 100V destination region setting will be made.

If you press the [F2] button, the LCD display will show "117V (U, U/CS) [OK]," and the 117V destination region setting will be made.

If you press the [F3] button, the LCD display will show "230V/240V (EU, E, A) [OK]," and the 230V/240V destination region setting will be made.

8. When you have made the setting, turn off the power of the MC-909, turn it back on again, and verify that the destination region has been changed to the setting you made.

Verify that the names and numbers of the preset patterns immediately after power-on are as follows.

(You can use the [INC] button and [DEC] button to change the pattern number.)

"100V": P001 R&B 1, P002 Euro Trance 1, P003 Garage 1, P004 Minimal 1, P005 G-Funk 1

"117V": P001 R&B 1, P002 Euro Trance 1, P003 Garage 1, P004 Minimal 1, P005 G-Funk 1

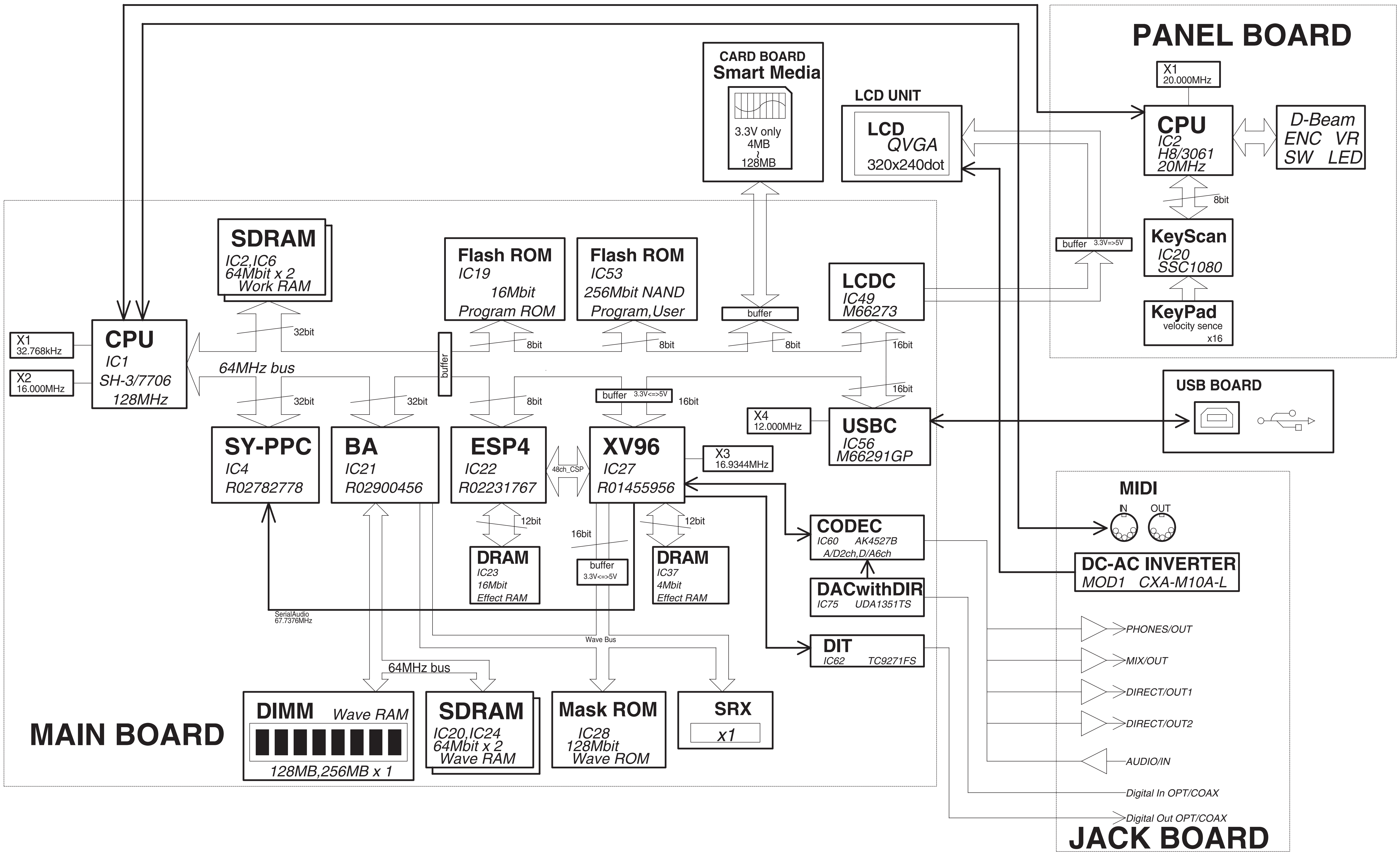
"230V,240V": P001 R&B 1, P002 Euro Trance 1, P003 Garage 1, P004 Minimal 1, P005 G-Funk 1

ERROR MESSAGE

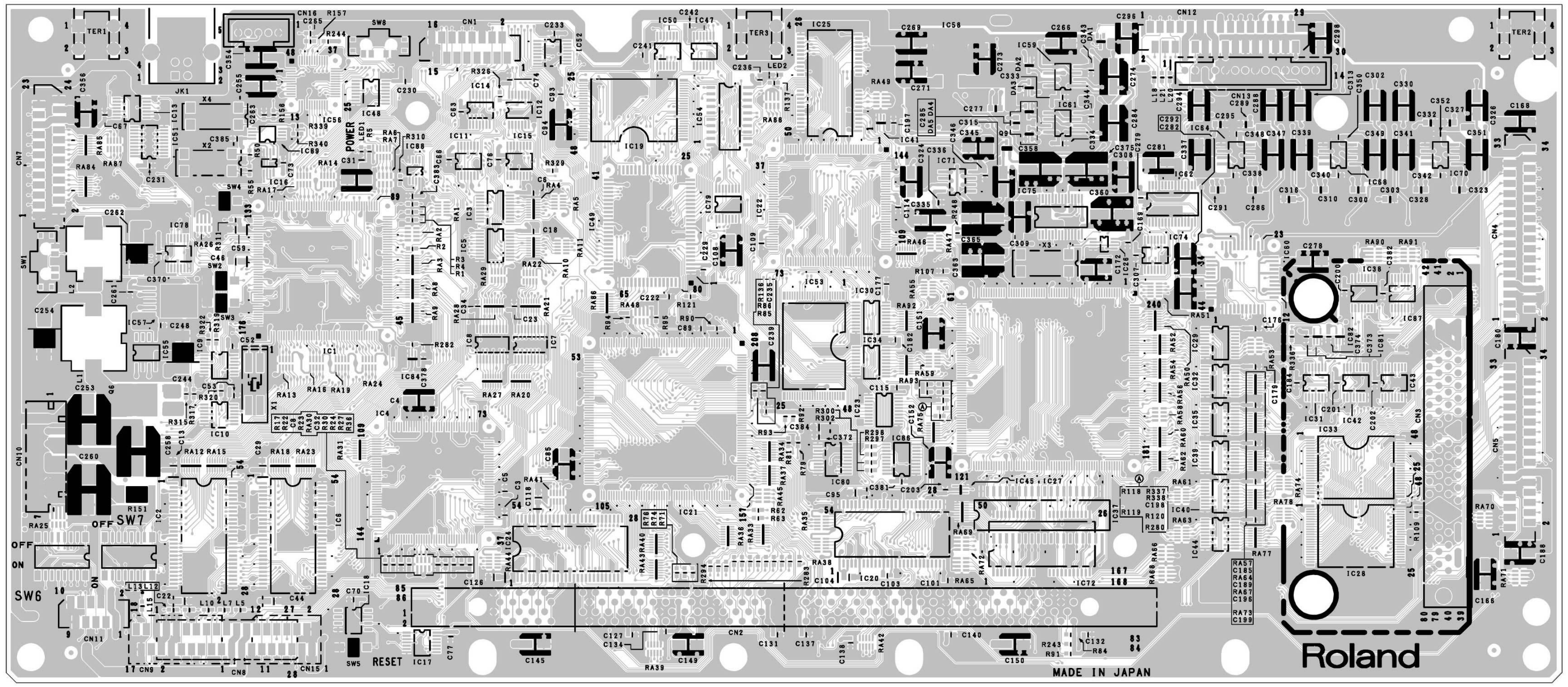
If an incorrect operation is performed, or if processing could not be performed as you specified, an error message will appear. Refer to the explanation for the error message that appears, and take the appropriate action.

Message	Meaning	Cause/Action
Beat Differs!	While using the Pattern Edit operation Copy, the copy could not be executed since the copy-source and copy-destination patterns have differing time signatures.	You must copy between patterns that have the same time signature.
	The imported SMF has a time signature that cannot be played by the MC-909, or has a changing time signature.	Import SMF data with a time signature that can be played by the MC-909, and whose time signature does not change.
Cannot Assign Phrase!	Since there are two or more unmuted parts, the phrase cannot be registered in an RPS set.	Choose one part of the phrase that you want to register, and mute all of the remaining parts
Cannot Edit Preset Sample!	This is a preset sample, and therefore cannot be edited.	---
Card Not Ready!	A memory card is not inserted in the slot.	Insert a memory card into the slot.
Card Protected!	The write-protect sticker is affixed to the card.	---
Empty Pattern!	The pattern cannot be played since it contains no performance data.	Select a pattern that contains data.
Empty Sample!	The sample contains no data.	Select a sample that contains data.
Empty Song!	The song has not been recorded, and therefore cannot be played.	Select a song that contains data.
Illegal File!	The MC-909 cannot use this file.	The MC-909 can use only audio files (WAV/AIFF format), SMF, and bitmap files.
Memory Damaged!	The contents of memory may have been damaged.	Please perform the Factory Reset operation (Owner's Manual; p. 20). If this does not resolve the problem, please contact your dealer or the nearest Roland Service Center.
Memory Full!	Saving is not possible because there is insufficient space in the user area or memory card.	Delete unneeded data.
MIDI Offline!	There is a problem with the MIDI cable connection.	Check that the MIDI cable has not been disconnected or broken.
No More Sample Numbers!	The sample cannot be divided any further.	Erase unneeded samples in order to allocate 256 or more consecutive sample numbers.
	Since fewer than 256 consecutive sample numbers are vacant, no further sampling is possible.	
Now Playing!	Since the MC-909 is playing, this operation cannot be executed.	Stop playback before you execute the operation.
Pattern Full!	Since the maximum number of notes that can be recorded in one pattern has been exceeded, no further pattern recording is possible.	Erase unneeded data from the pattern you are recording
Permission Denied!	The file is protected.	---
Sample Length Too Short!	The sample is too short, and cannot be edited correctly.If the sample is extremely short, editing may not produce the desired result.	
Sample Memory Full!	Since there is insufficient sample memory, no further sampling or sample editing is possible.	Erase unneeded samples (Owner's Manual; p. 123).
Song Recording Full!	Since the maximum number of patterns that can be recorded in one song has been exceeded, no further song recording is possible.	A maximum of 50 patterns can be recorded in one song. No further patterns can be recorded.
Unformatted!	The memory card is in an unsupported format.	Format the memory card (Owner's Manual; p. 134).
Wrong Setting!	The pattern edit setting is incorrect.	Make the correct setting.

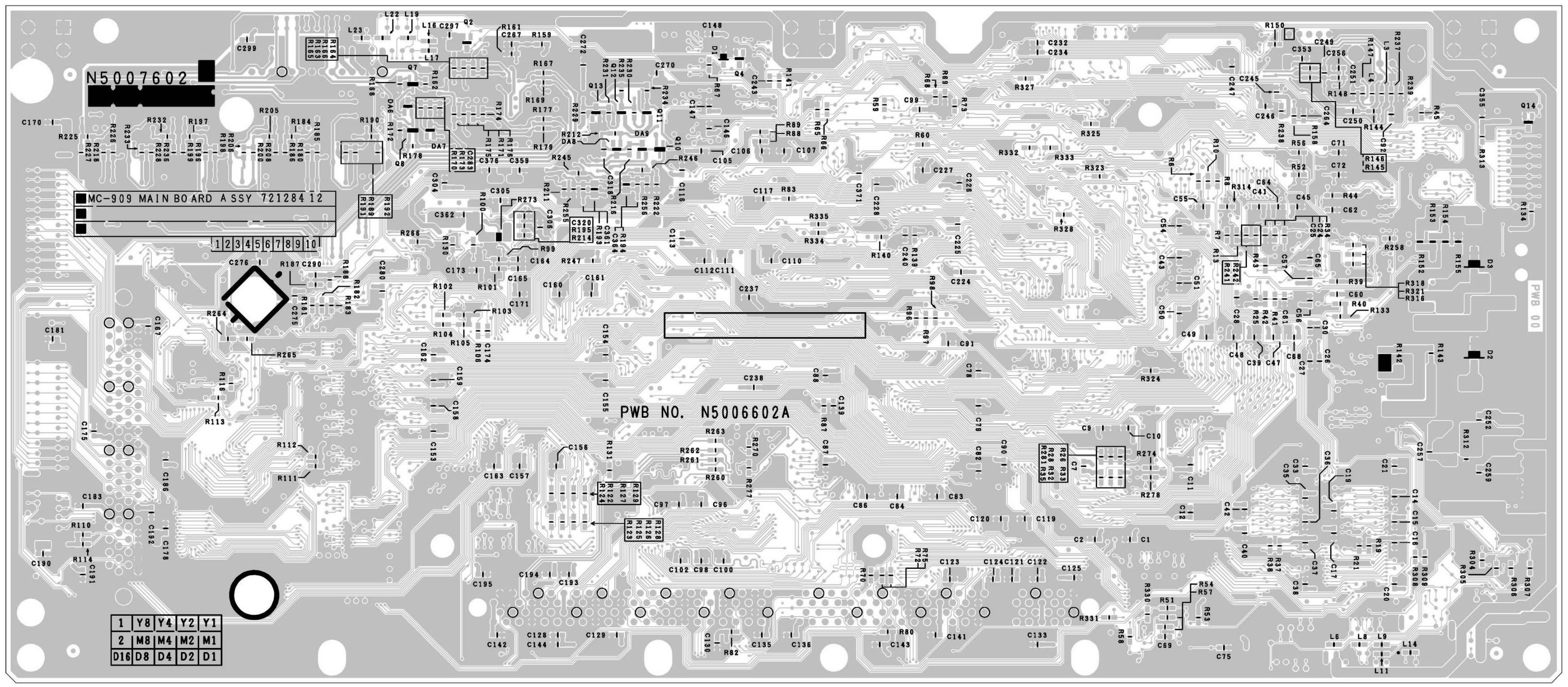
BLOCK DIAGRAM



CIRCUIT BOARD(MAIN)

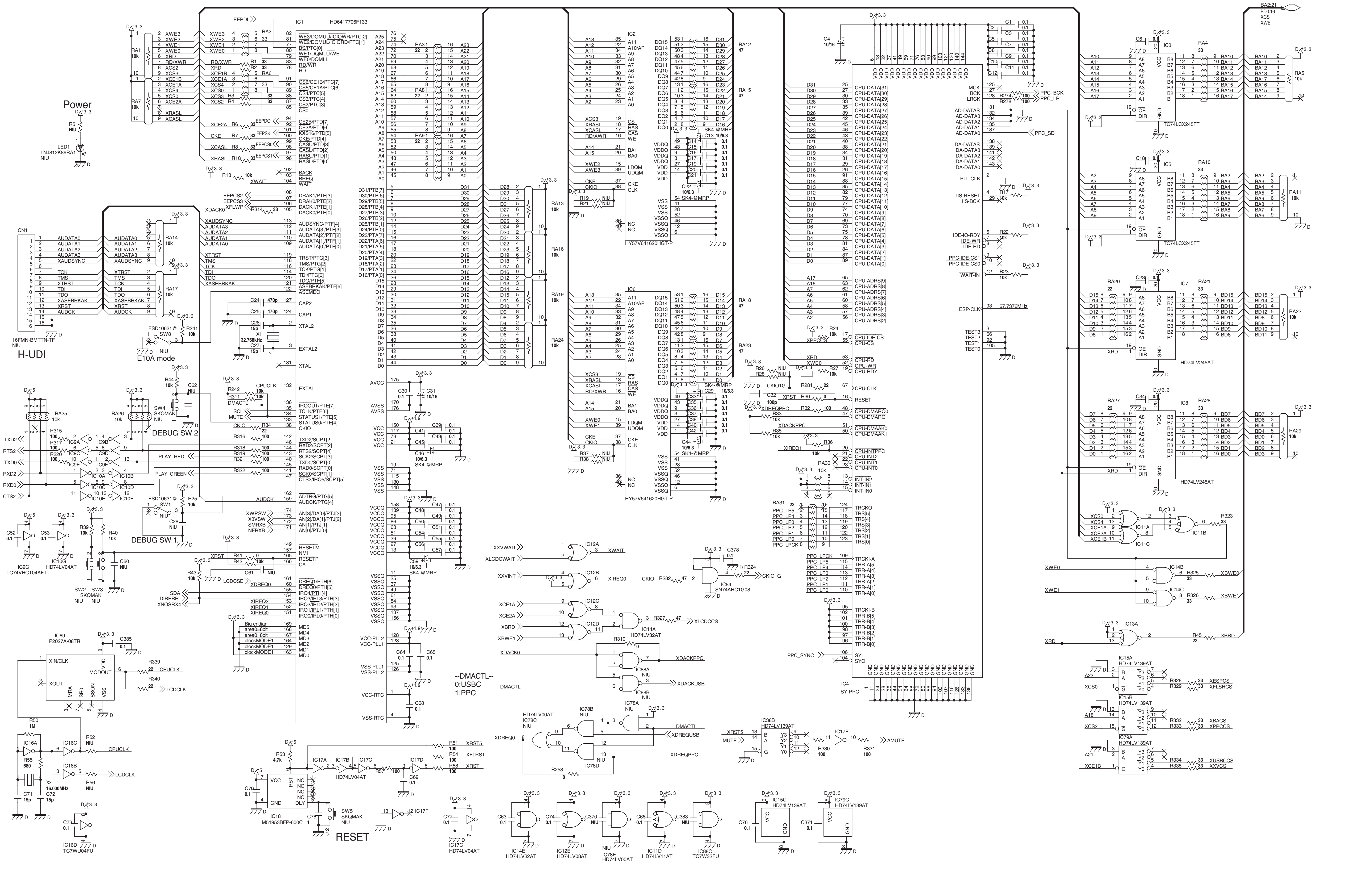


View from components side

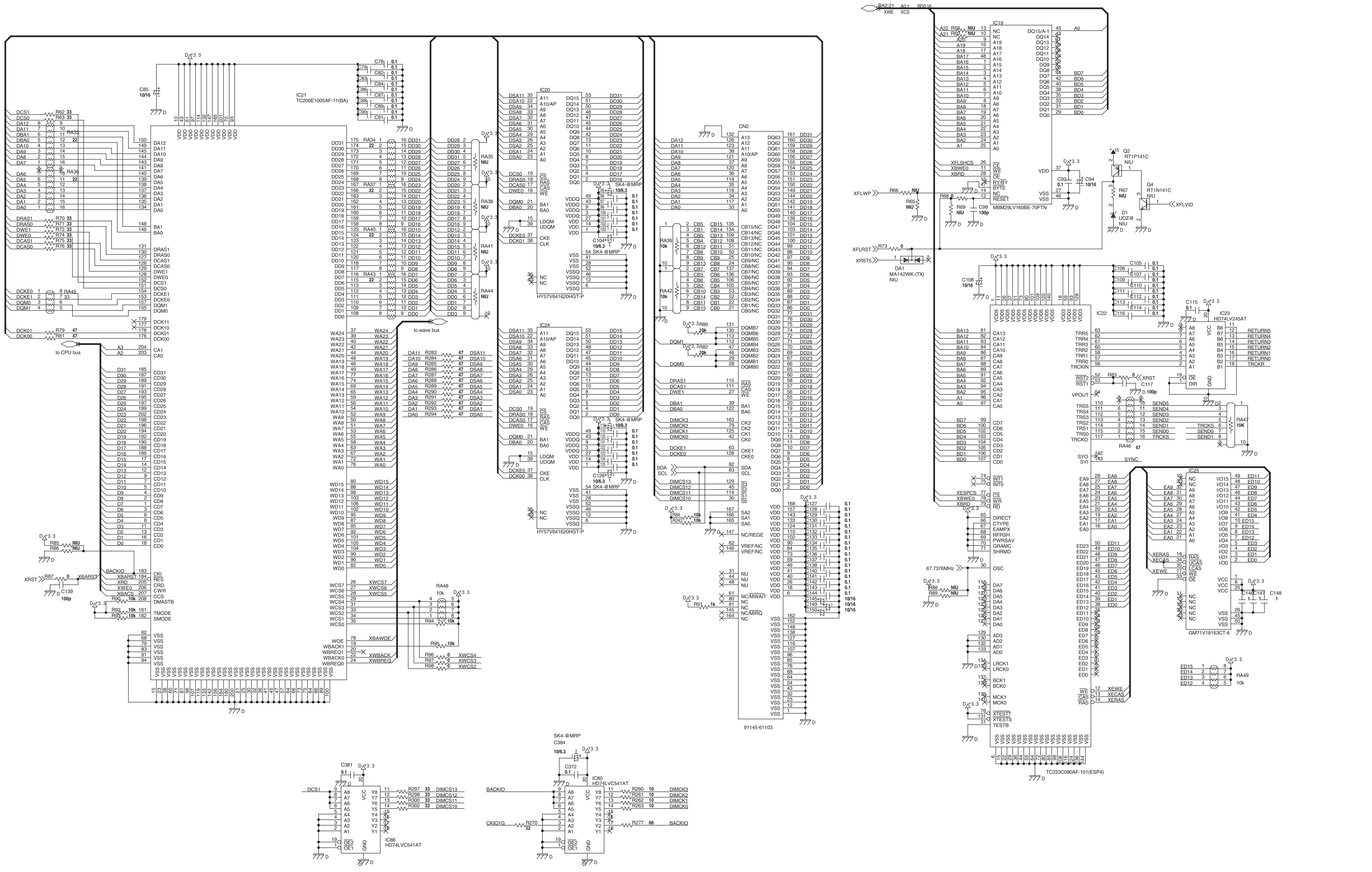


View from foil side

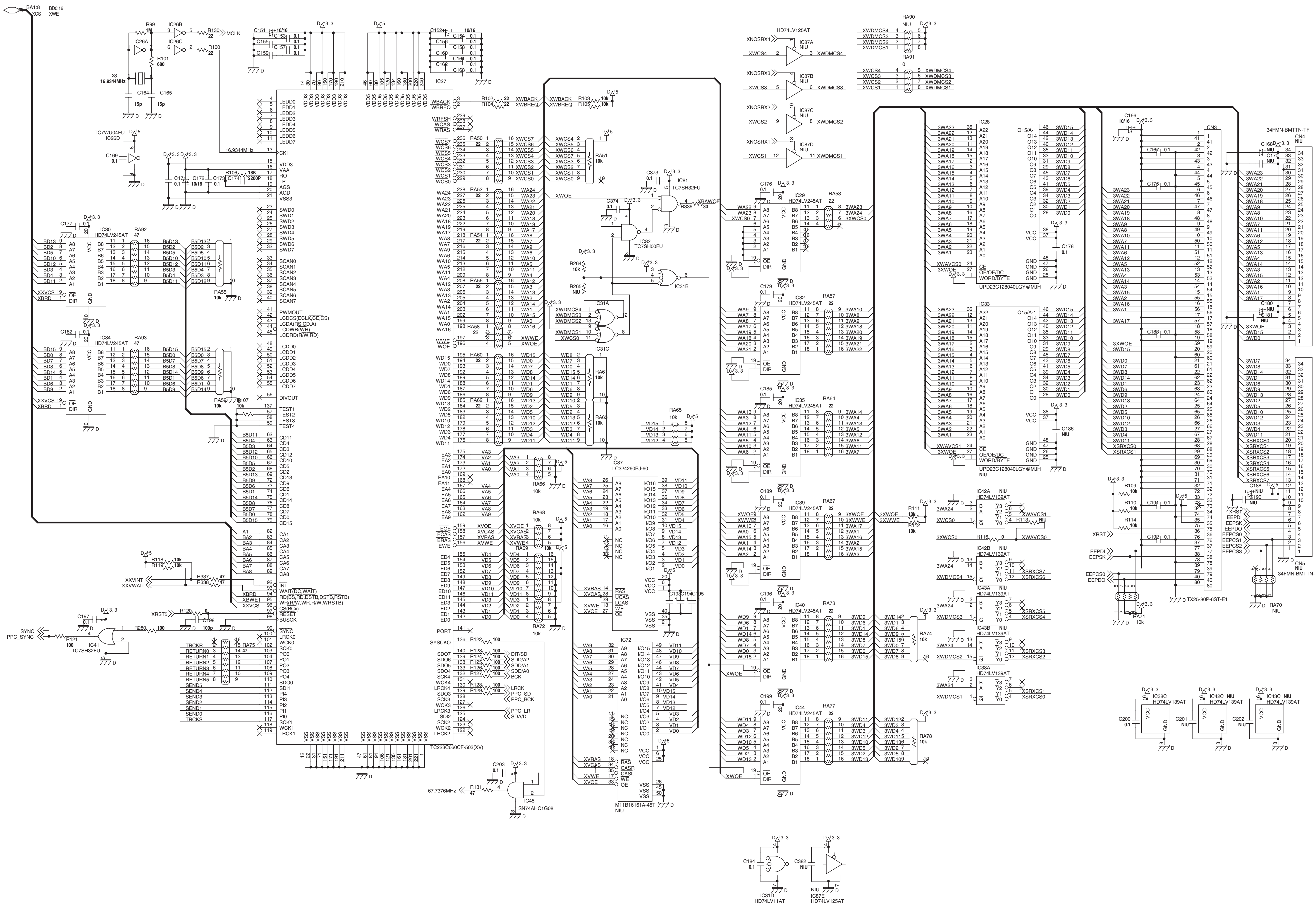
CIRCUIT DIAGRAM(MAIN1)



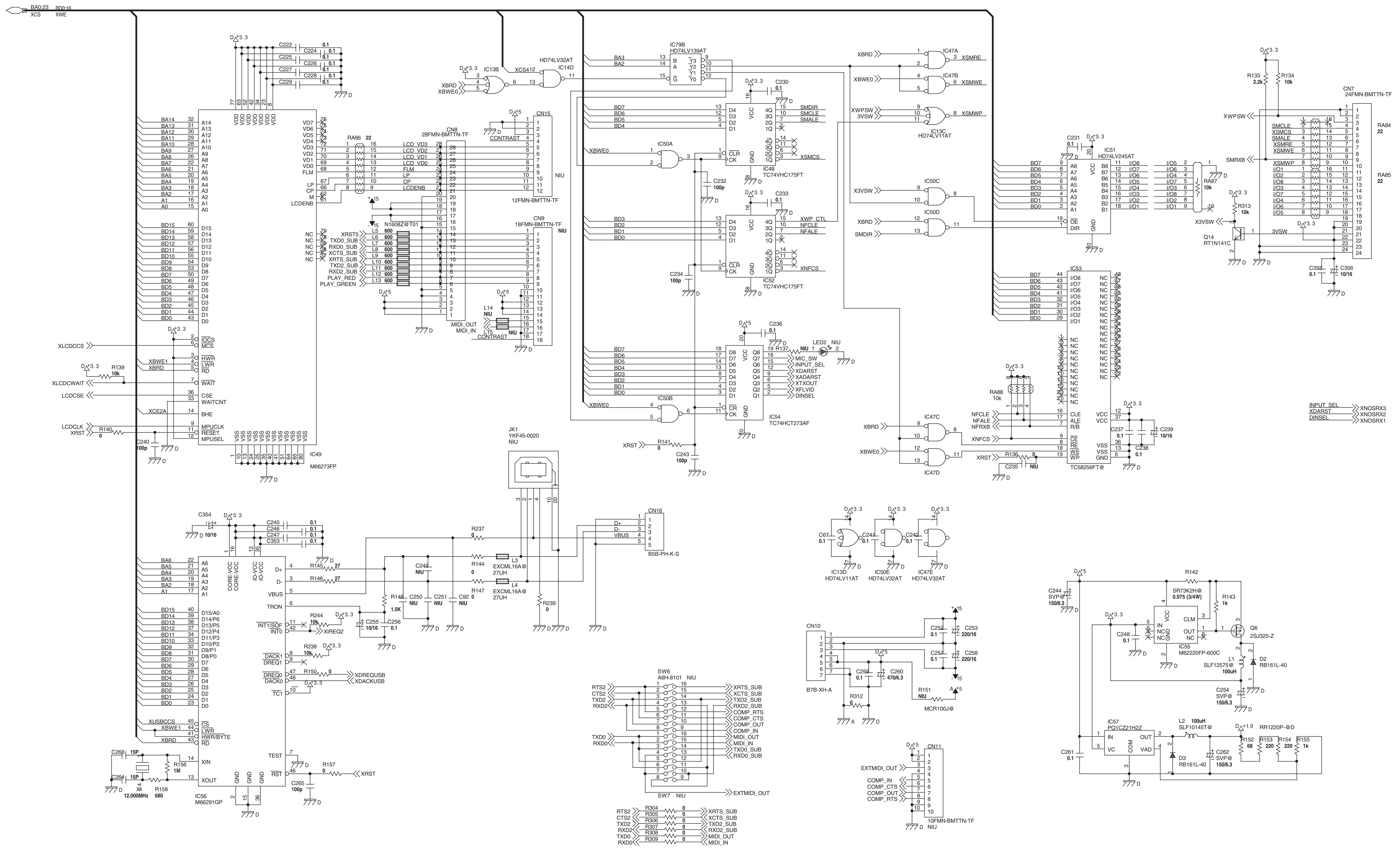
CIRCUIT DIAGRAM(MAIN2)



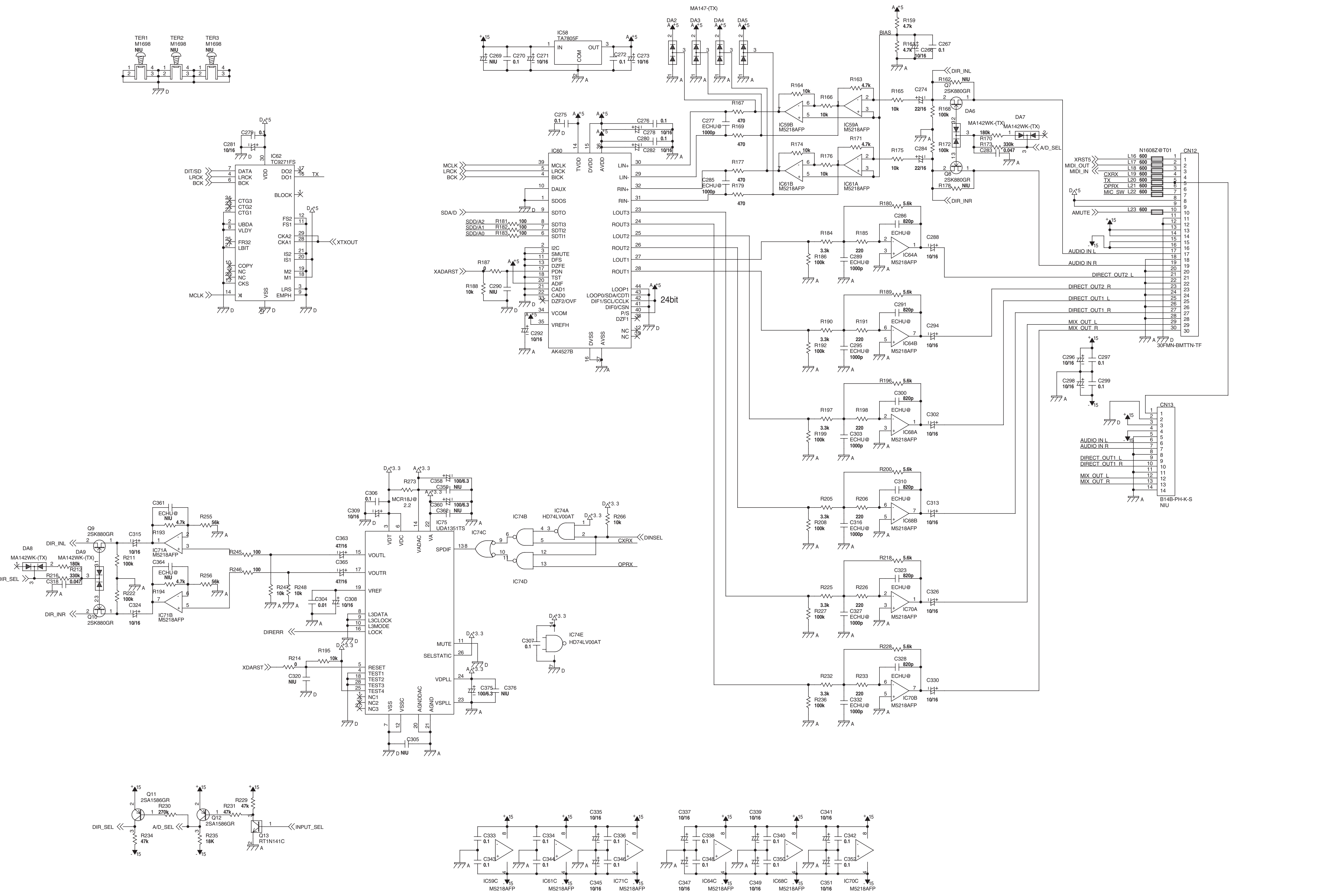
CIRCUIT DIAGRAM(MAIN3)



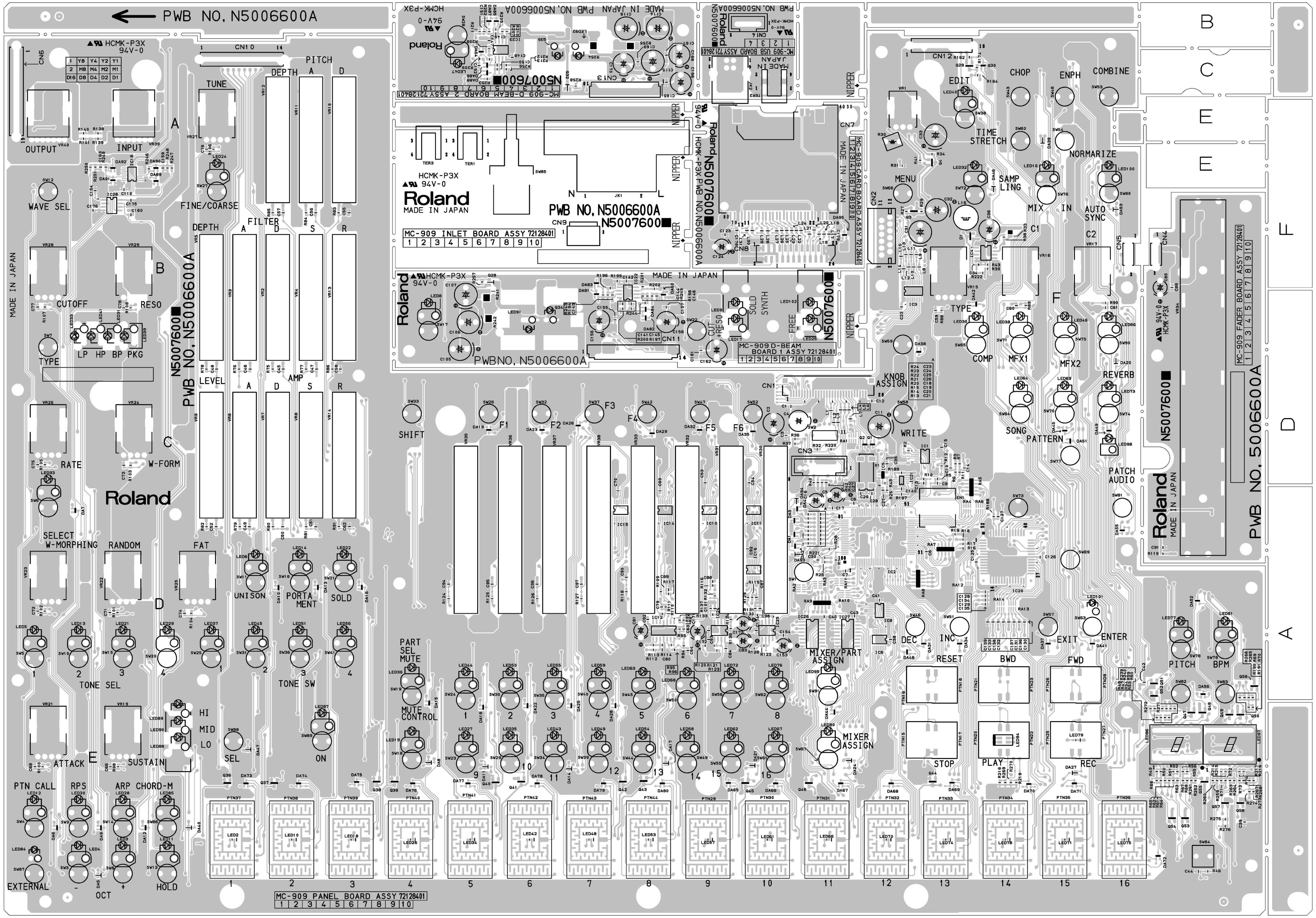
CIRCUIT DIAGRAM(MAIN4)



CIRCUIT DIAGRAM(MAIN5)



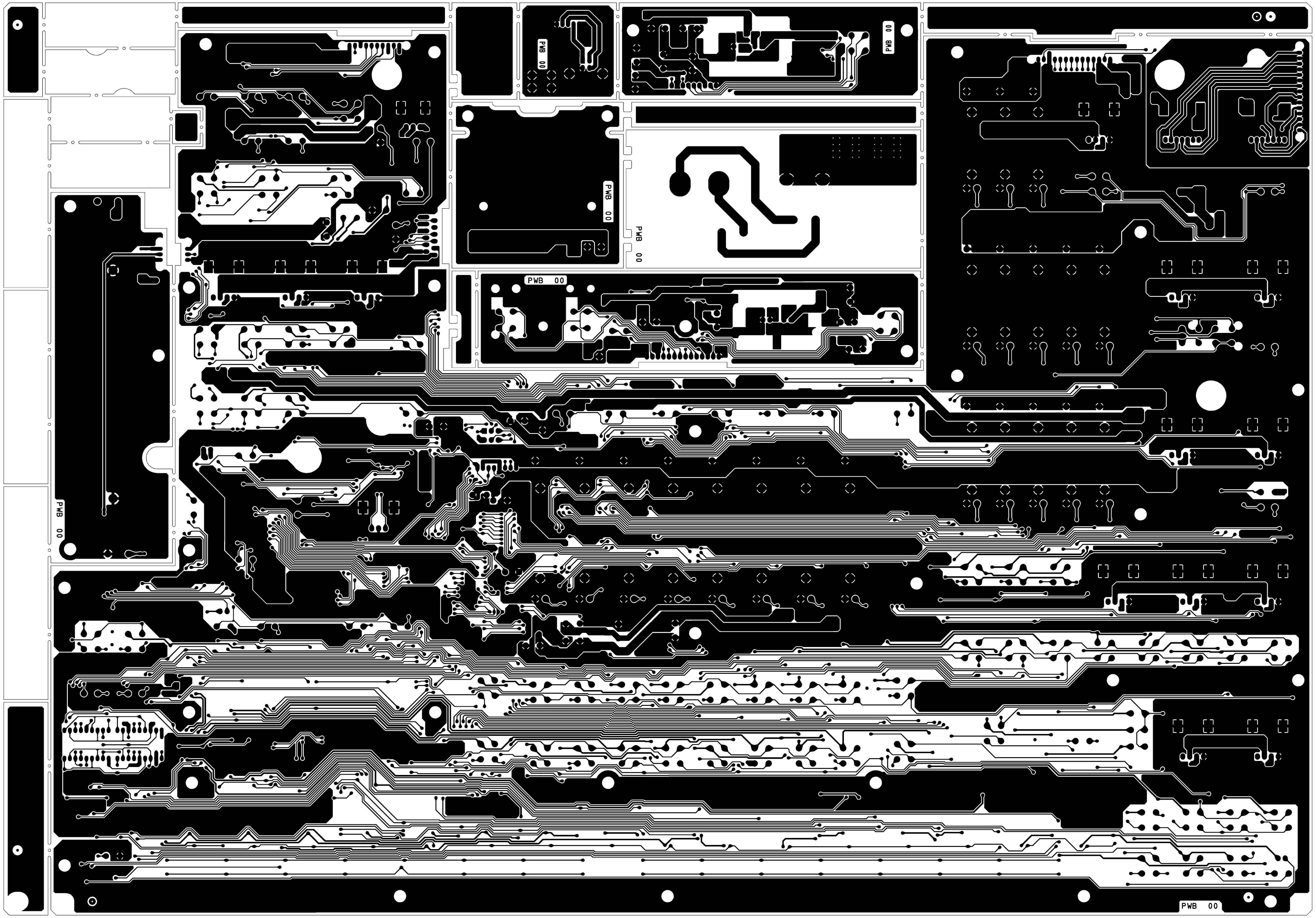
CIRCUIT BOARD(PANEL)



View from components side

"scale=0.85"

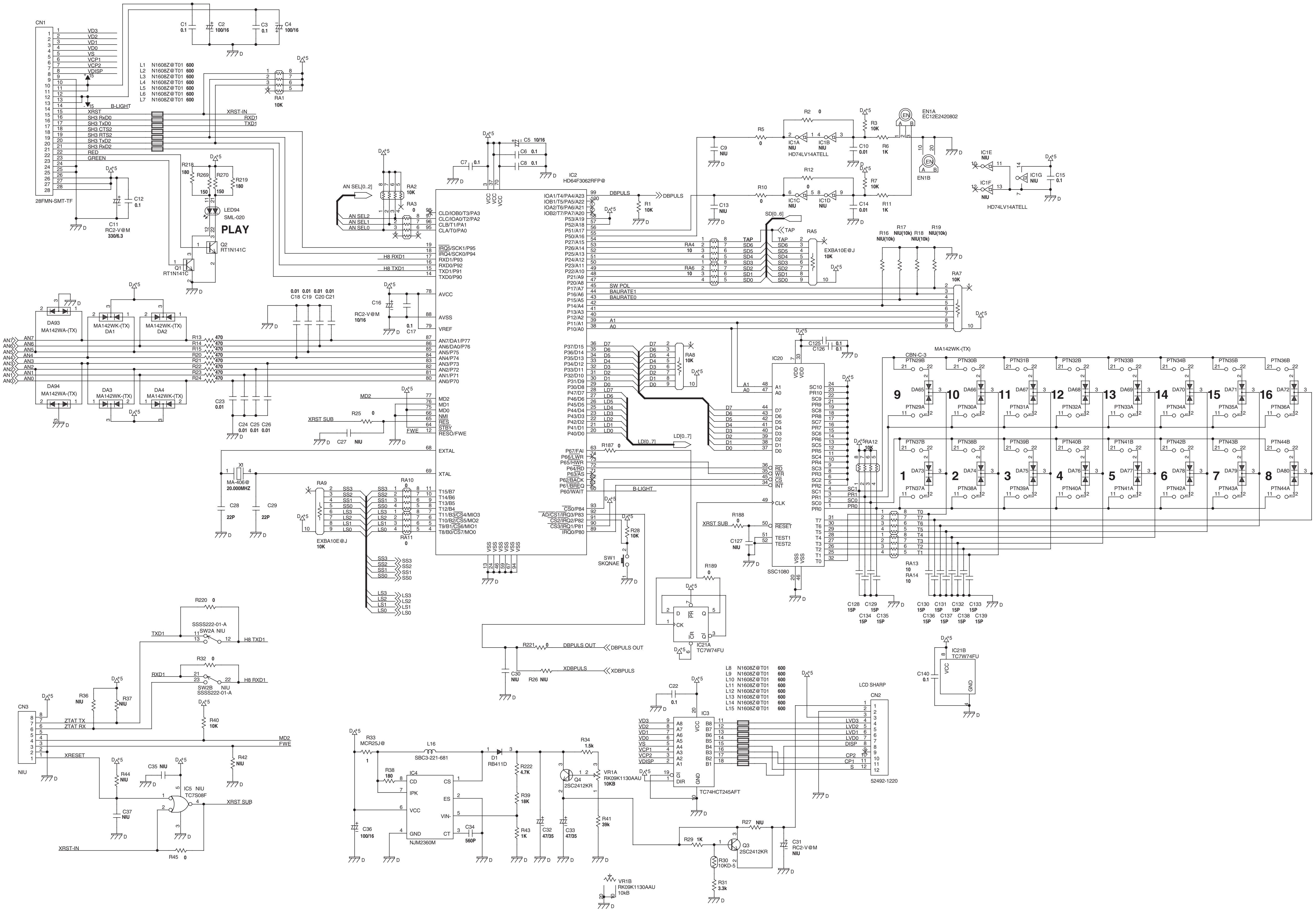
CIRCUIT BOARD(PANEL)



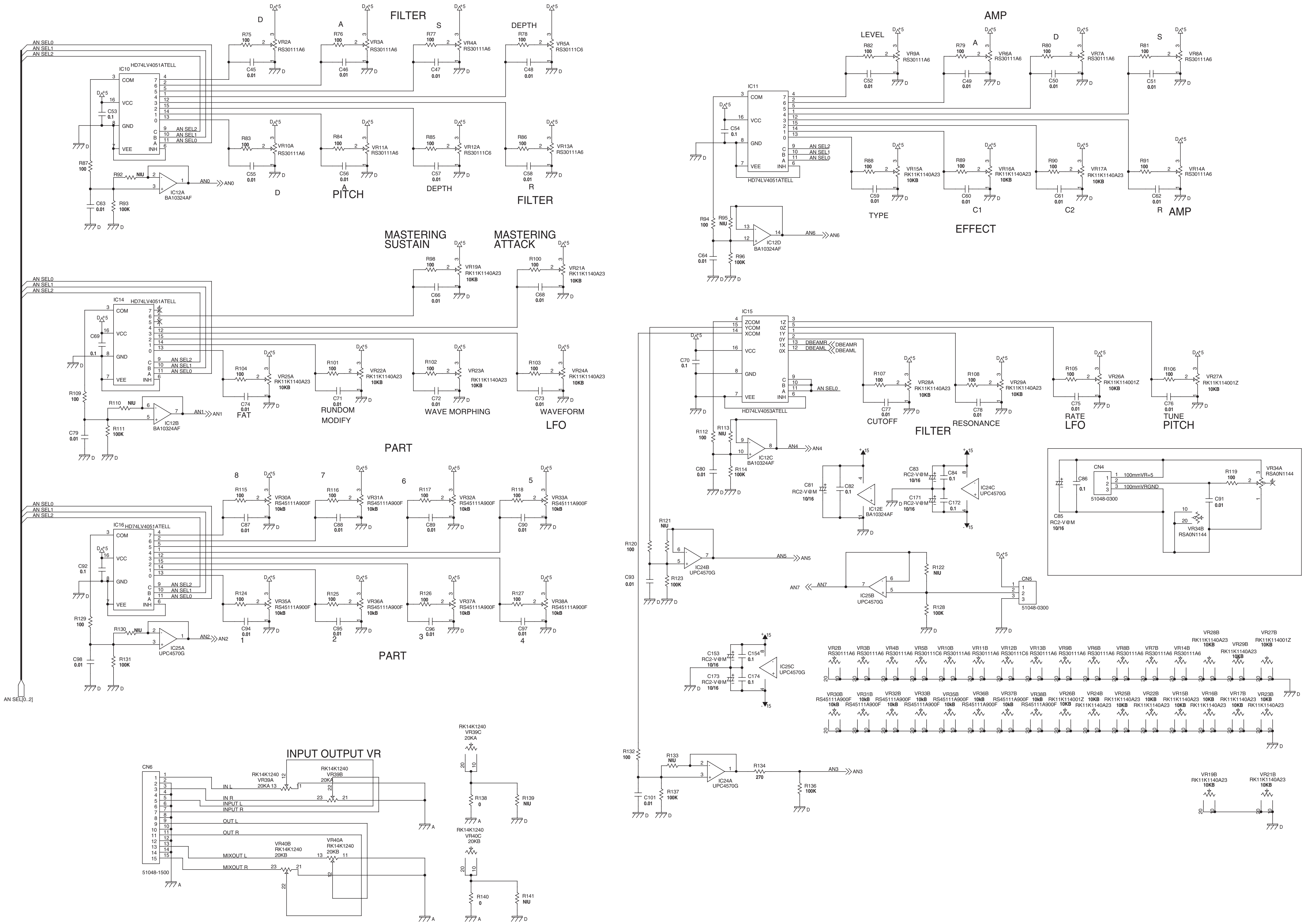
View from foil side

"scale=0.85"

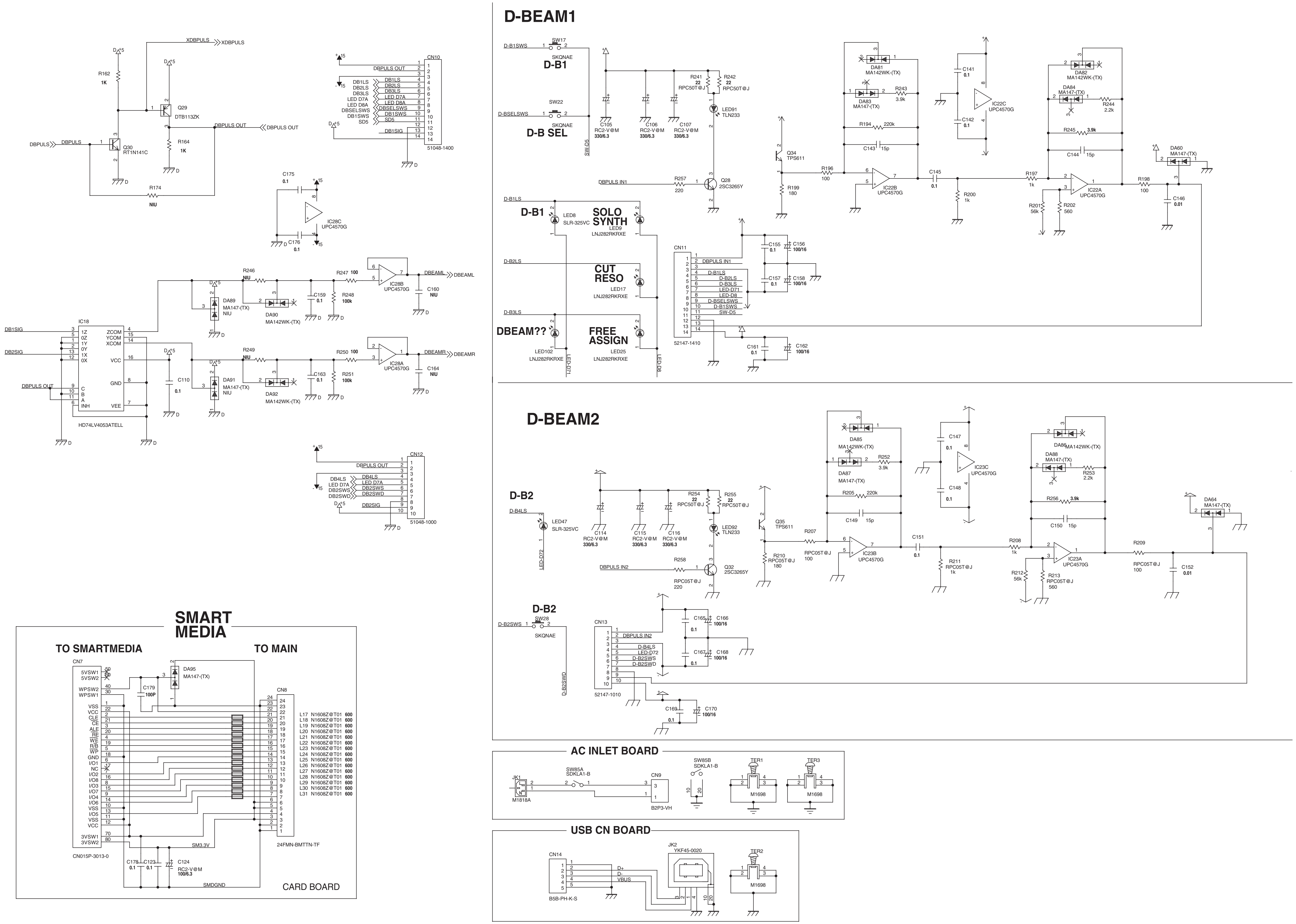
CIRCUIT DIAGRAM(PANEL1)



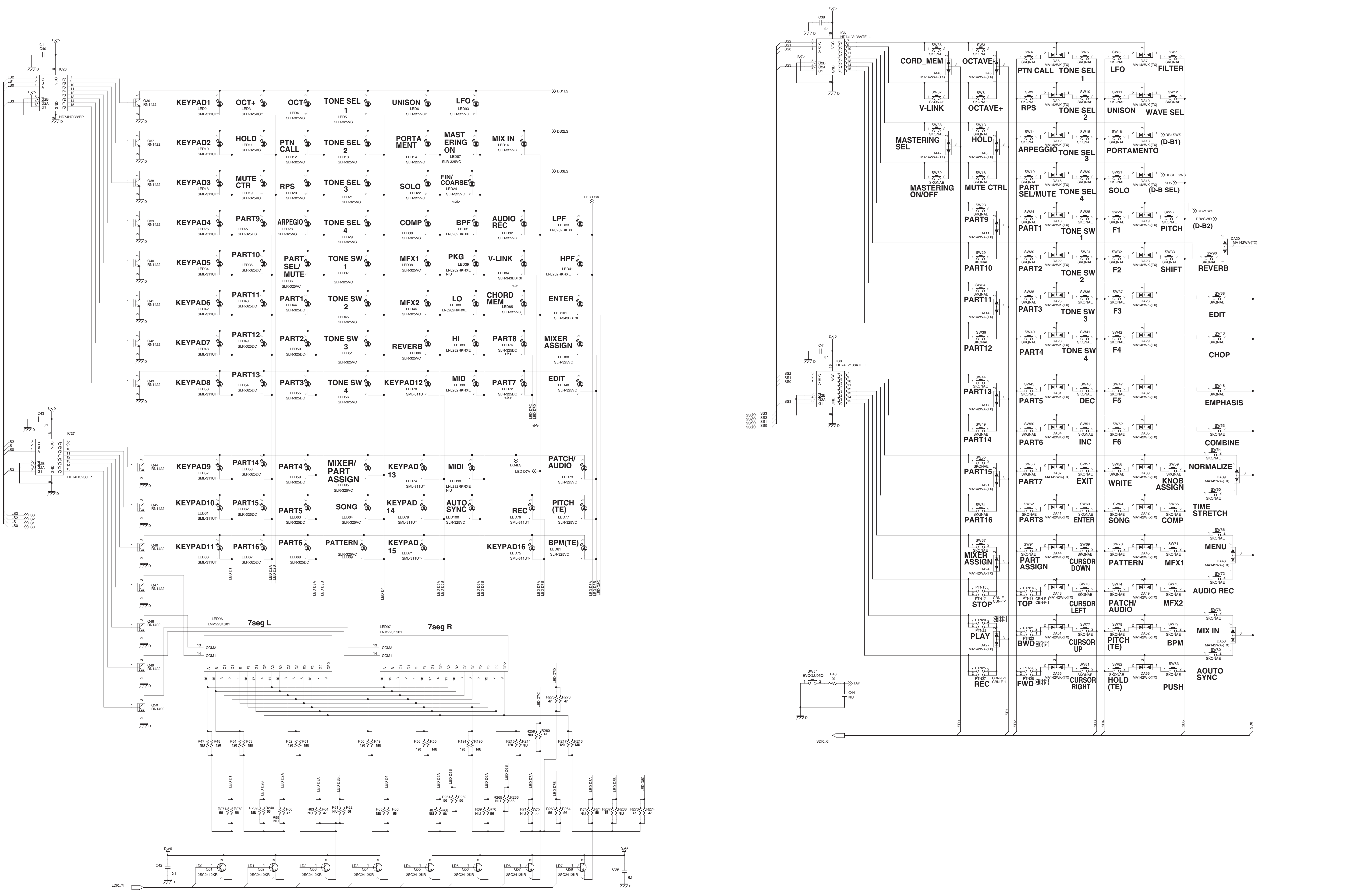
CIRCUIT DIAGRAM(PANEL2)



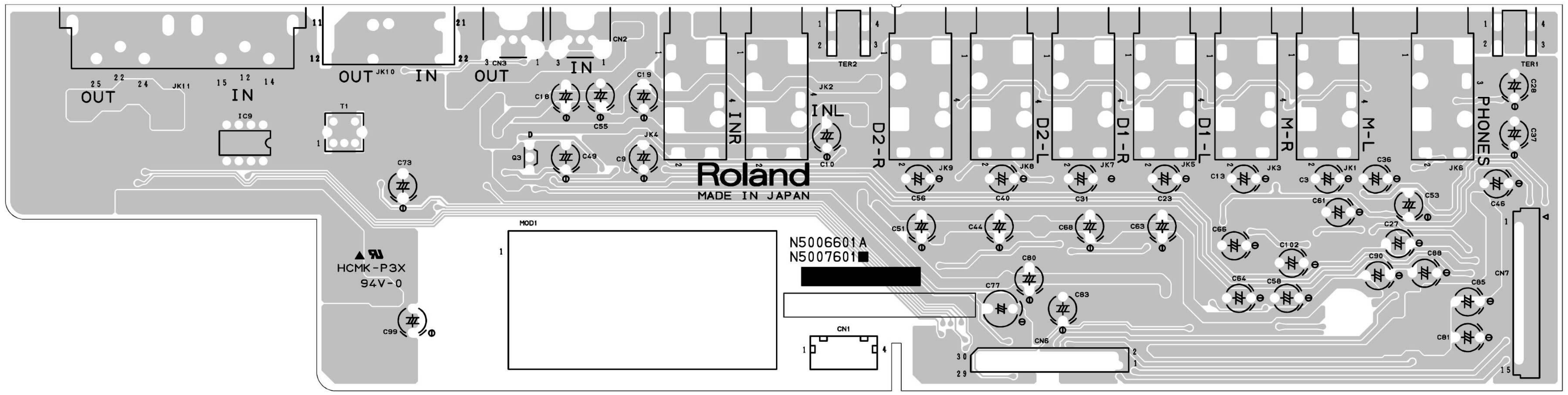
CIRCUIT DIAGRAM(PANEL3)



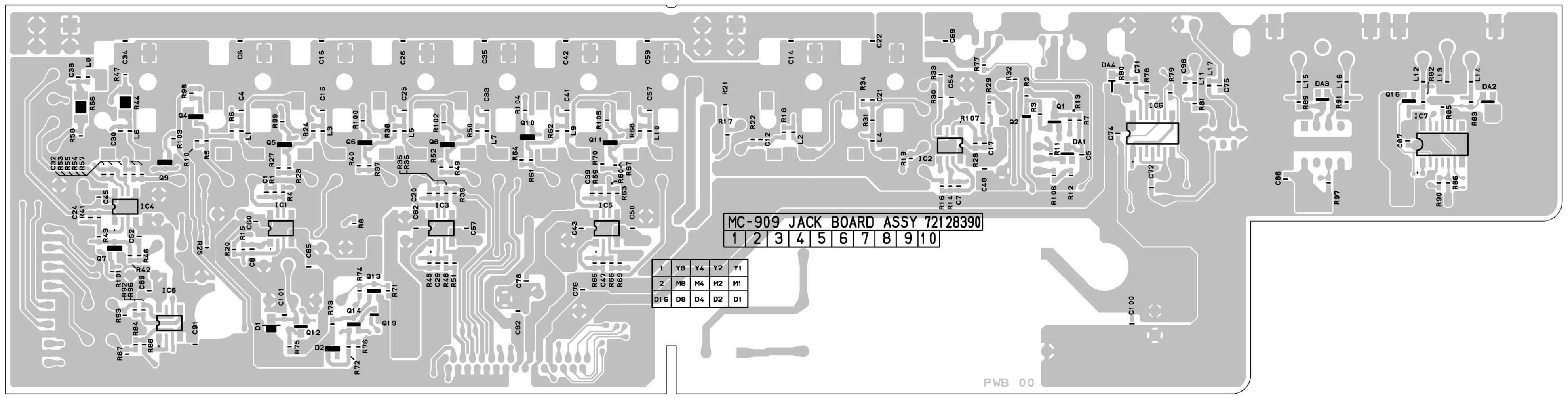
CIRCUIT DIAGRAM(PANEL4)



CIRCUIT BOARD(JACK)



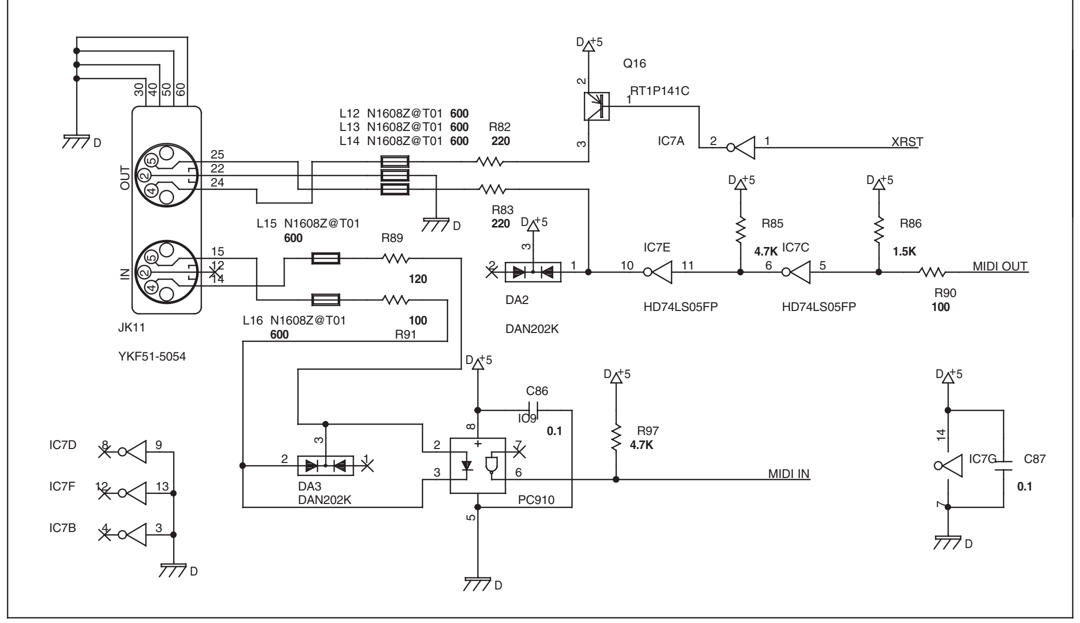
View from components side



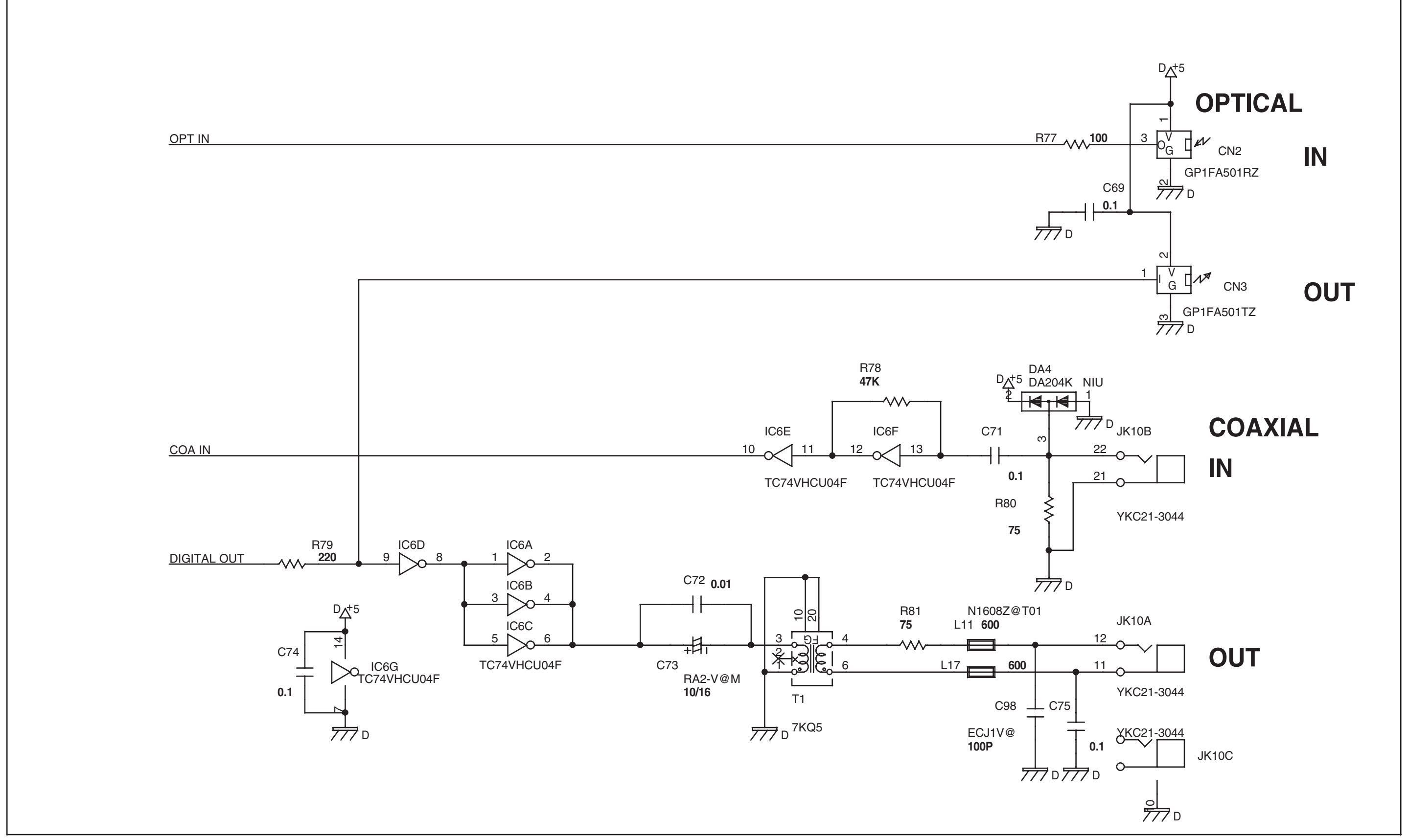
View from foil side

CIRCUIT DIAGRAM(JACK1)

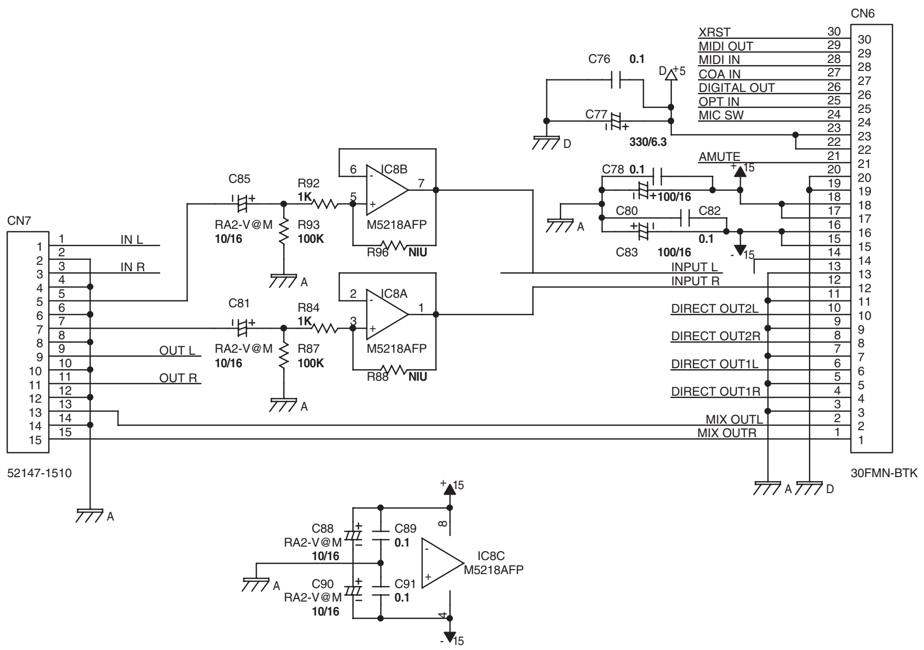
MIDI I/F



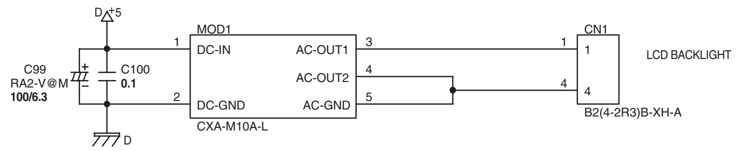
DIGITAL I/O



MAIN TO JACK



LCD INVERTER



CIRCUIT DIAGRAM(JACK2)

